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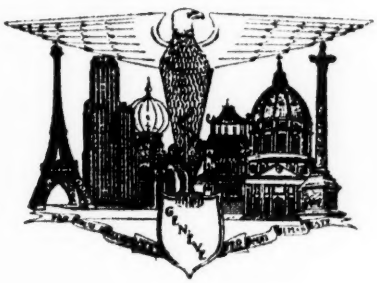

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An Evaluation of Vaginal Hysterectomy

WALTER J. REICH, M.D., F.A.C.S., M.I.C.S. AND
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FROM our experiences in the Gynecological Clinic at the Cook County Hospital, and in reviewing pathologic conditions present in a cervical stump following supracervical hysterectomy, we have come to the conclusion that whenever a uterus is to be removed it should be removed completely and not partially, the condition of the patient permitting. There is an ever-increasing number of cases of malignancy of the cervical stump, both of the portio vaginalis and of the endocervix. In addition, we have had the opportunity of observing quite a few cases of strictures, cervicitis and endocervicitis; also bleedings and discharges from erosions, eversions and polyps of the stump. Many women are incapacitated and many more lose their lives because of the incomplete removal of the uterus.

Vaginal hysterectomy has come to the fore in recent years and rightly so. In our experience with hysterectomies, the mortality and morbidity are markedly decreased by the vaginal as compared to the abdominal approach.

It is paramount that an intelligent bimanual examination be performed and that the interpretation and correlation between the results of the examination, the patient's history, laboratory findings and general physical condition be made.

* From the Gynecological Division of the Cook County Graduate School of Medicine.

INDICATIONS AND CONTRAINDICATIONS

The *indications* for a vaginal hysterectomy are the same as for abdominal hysterectomy, namely, various pathologic conditions of the uterus causing bleeding or pressure symptoms, or cases of descensus, prolapsus or procidentia.

It must be borne in mind that there are certain pelvic pathologic entities which, if present, are distinct contraindications to the vaginal approach for the removal of the uterus. May we state with unirrevocable emphasis that the reason difficulties are encountered in vaginal hysterectomies, not only by the occasional performer of this operation but also by the men who prefer this route, is not so much due to technic as to distinct contraindications to the procedure.

To us the contraindications stand out just as prominently as do the conditions which must be present for the application of forceps to the obstetrician.

Clinical judgment, proper selection of cases according to indications and "conditions" present will prevent serious morbidity and mortality. The operator

who begins a vaginal hysterectomy and after having worked for some time finds it impossible or impractical to continue the operation from below, will be spared the inevitable recourse to abdominal surgery.

Therefore it is imperative to know, *when not to do* a vaginal hysterectomy. And we therefore offer the following *contraindications:* (1) residual pelvic inflammatory processes, regardless of the etiology, whether postpartum, postabortal, gonorrheal or tuberculous in nature, with resultant secondary uterine fixation; (2) endometriosis with associated fixation of the tissues; (3) malignancy with fixation; (4) postirradiation fixation; (5) cases which have had a previous laparotomy with subsequent fixation. (In our experience a reoperative case with *unlimited* mobility of the uterus can have a vaginal hysterectomy); (6) intraligamentary fibroids; (7) pseudo-descensus, in which we find a long hytrophied cervix but a fixed corpus; (8) narrowing of the vaginal tract due either to postoperative scarring, postpartum scarring or secondary contracture due to an inflammatory process.

The size of the uterus is not nearly as important a contraindication as the above associated pathology. A uterus the size of a four to four and one-half month pregnancy can be removed vaginally by means of morcellation.

MEDICAL PREOPERATIVE PREPARATION

Before proceeding with the actual technic, we should like to emphasize the importance of preoperative preparation. The patient should have a complete check-up, including detailed history, thorough bimanual examination, complete systemic inventory and confirmatory laboratory examinations. When the patient's condition is such that she is a definite minimal operative risk, we are ready to proceed. Here mention should be made that in the past few years we have paid considerable attention to building our patients up with the necessary preoperative transfusions, amino acids, and high vitamin diets. We have also made detailed studies of other systems such as the genito-urinary tract and the cardiovascular system and have had associated pathology controlled or corrected prior to proceeding with surgery.

GYNECOLOGIC PREOPERATIVE PREPARATION

The general systemic preparation has already been mentioned. We are now using vitamin K, 15 mg. daily by mouth for one week preoperatively in every patient, and there seems to be a distinct reduction in the amount of oozing, especially of the vaginal walls. Since the advent of vitamin K there has been a marked reduction in the oozing associated with this procedure. This, in our opinion, is a distinct advance and greatly facilitates the operation. Preoperative douches are very important, using any medication which will produce a low hydrogen ion concentration in the vagina, ranging from PH 4 to 4.5. Substances such as lactic acid (one dram to one quart), plain white vinegar, boric acid, or in some instances, sulfathiazole douches (eight grams to one quart of water), may be used for a week or two preoperatively. Eight hours preoperatively we start 2000 cc. 10 per cent glucose with 30 mg. vitamin K by the intravenous route.

The direct preoperative preparation is made as follows: the labia majora, labia minora, the region of the symphysis pubis, the lower portion of the abdomen and the upper portion of the thighs and vagina should be carefully scrubbed for ten minutes with soap and water. This is followed by rinsing with alcohol and painting with merthiolate,

mercresin or any other antiseptic. Since we have discontinued using tincture of iodine we have noticed the absence of skin burns and fewer infections.

METHOD AND CHOICE OF ANESTHESIA

The choice of anesthesia is most important; each patient requires an anestetic which is most suitable for her, depending upon her basal metabolic rate, age, blood count, blood pressure, weight and general systemic condition. Many of our patients are in the older age brackets and have certain cardiorenal changes which come with age, and also many residues of other systemic changes. It has therefore been our policy in the past to use such anesthetics as direct local infiltration, ether by the open or closed method, cyclopropane, ethylene, and nitrous oxide induction. In the inhalation group we give the minimal amount of basal anesthesia and the maximum of oxygen mixture.

However, in some cases of local anesthesia, the method was not entirely satisfactory due either to the extreme apprehensiveness of the patient or to the occasional difficulty in finding the correct cleavage planes as a result of the infiltration.

In regard to the inhalation group, we are of the opinion that, irrespective of the judicious choice of anesthesia and the skill of the anesthetist, there is always a percentage of risk, especially in older women. The risk comes not so much as a direct result of the administration of the anesthetic, but rather a risk of postanesthesia complications.

With these facts in mind, an anesthetic was sought which might be more suitable in this type of surgery. We have found what we think is a choice anesthetic for vaginal hysterectomy and we have used it in over fifty cases. The method we have been employing is that of sacral block. The anesthetic is made by preparing a solution of 100 cc. of 1 per cent metycaine in normal saline with ½ cc. of 1:1000 adrenalin. We have used 1 per cent novocaine but prefer metycaine because of the earlier onset of anesthesia, greater intensity of anesthesia, and 50 per cent greater duration. We prefer to use the metycaine in saline rather than sterile water because the saline solution is less irritating. We usually inject 35 cc. into the caudal canal in doses of 5 cc., 20 cc., then an additional 10 cc., if necessary. The second sacral foramen on each side usually requires 10 cc., the third 3 cc., and the fourth 2 cc. A few of our cases required about 10 cc. of 2½ per cent sodium pentothal intravenously, the discomfort apparently being due to traction upon the peritoneum. We have been using our regular preoperative medication of morphine and atropine, or morphine and scopolamine, and to date have had no anesthetic complications, either immediate or latent. In addition, because of the discomfort experienced in a few cases, we are now also injecting the fourth and fifth lumbar and first sacral foramina with 5 cc. of the solution. Nembutal is also added preoperatively so as to minimize the possibility of anesthetic reaction because of the additional amount of solution used. To date we have had just a few of these cases, and therefore cannot draw any conclusions by comparison with our previous method of sacral block.

Of all the anesthetics we have used in vaginal hysterectomy, the sacral block seems by far the most ideal. The method of administration is relatively easy except in a very adipose patient. The relaxation is complete, and postoperatively these patients can be on the backrest as soon as they return to bed. We believe the latter to be all-important in the older age group as it is a distinct

factor in preventing pulmonary complications. We have now started to use continuous caudal anesthesia averaging 28 cc. of 1½ per cent metycaine, and although our experience to date is very limited, it has been extremely satisfactory and we have had no complications from this type of anesthesia.

OPERATIVE TECHNIC

The patient is placed with the buttocks slightly over the edge of the table and in a moderate Trendelenberg position. This facilitates the operative procedure and has a tendency, as in an abdominal section, to allow the bowels to fall toward the diaphragm.

We suture the labia to the towels and to the skin lateral to the labia. This in many instances obviates the use of lateral retractors. The anterior lip of the cervix is then grasped with a single toothed tenaculum. Extreme care should be taken not to include the bladder, which might readily be done, especially when a marked cystocele is present; or if there is a distortion due to the citcatrization as the result of an old laceration extending up into the base of the broad ligament. To prevent this, place a metal catheter into the bladder, which will show very definitely the relation of the bladder to the external os. Two heavy silk sutures going through the anterior and posterior lips of the cervix replace the tenaculum. We prefer the silk sutures because they replace a cumbersome instrument and exert less traction on the uterus. Pitocin is then injected into the anterior wall of the cervix, except in the presence of a marked cystocele when it is injected into the posterior lip. We have discontinued the use of pituitrin and use only pitocin (which does not contain the vasopressor substance), because of the absence of pituitrin shock, or marked rise in blood pressure, effect on the coronary arteries, and because of its equally effective oxytocic action. It is a known fact that there have been mortalities as a result of the use of pituitrin when this medication definitely had not been accidentally injected into a blood vessel. We are of the opinion that pitocin has a definite tendency toward decreasing the bleeding during the operative procedure and reducing the size of the uterus. The dose which is usually employed is 1 cc., but 2 or 3 cc. may be used in large uteri with no deleterious effects. (Fig. 1)

A circular incision is made in the vaginal wall just above the external os. It is important at this point to judge the distance the bladder has descended on the cervix so as not to injure it. The insertion of the metal catheter as previously mentioned will prevent this accident. The cleavage planes are then found anteriorly and posteriorly and the bladder is advanced upward off the cervix to expose the anterior cul-de-sac. The posterior vaginal wall is reflected off the cervix to expose the posterior cul-de-sac. (Fig. 2)

The parametrium is then clamped with straight Fischmann angiotribe forceps, cut, and transfixed on both sides. The posterior cul-de-sac is opened next and the utero-sacral ligaments are exposed, clamped with curved angiotribe forceps, cut, and transfixed. (Fig. 3) There is a definite difference in the mobility of the uterus after the severence of the parametrium and utero-sacral ligaments. Because of this increased mobility, it is easier to enter the anterior cul-de-sac and thereby prevent injury to the bladder.

After the parametria have been disconnected and the anterior and posterior cul-de-sacs opened, the uterus is delivered either anteriorly or posteriorly, depending usually on its preoperative

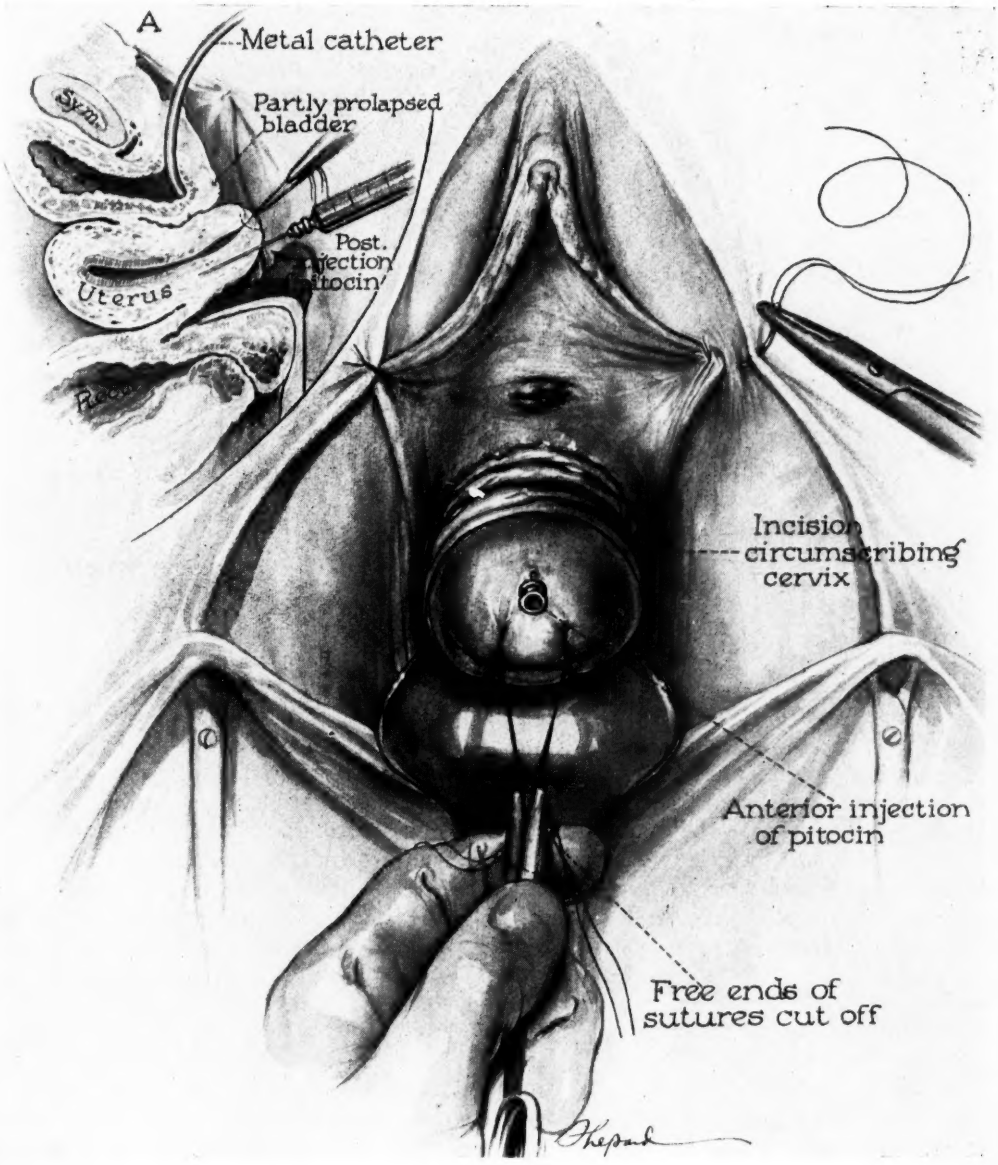

Fig. 1. Showing braided silk in place. Pitocin injected into anterior lip. Anterior circumscribing incision into vaginal wall. Insert A, Pitocin injected into posterior portion of cervix because of proximity of cystocele to external os.

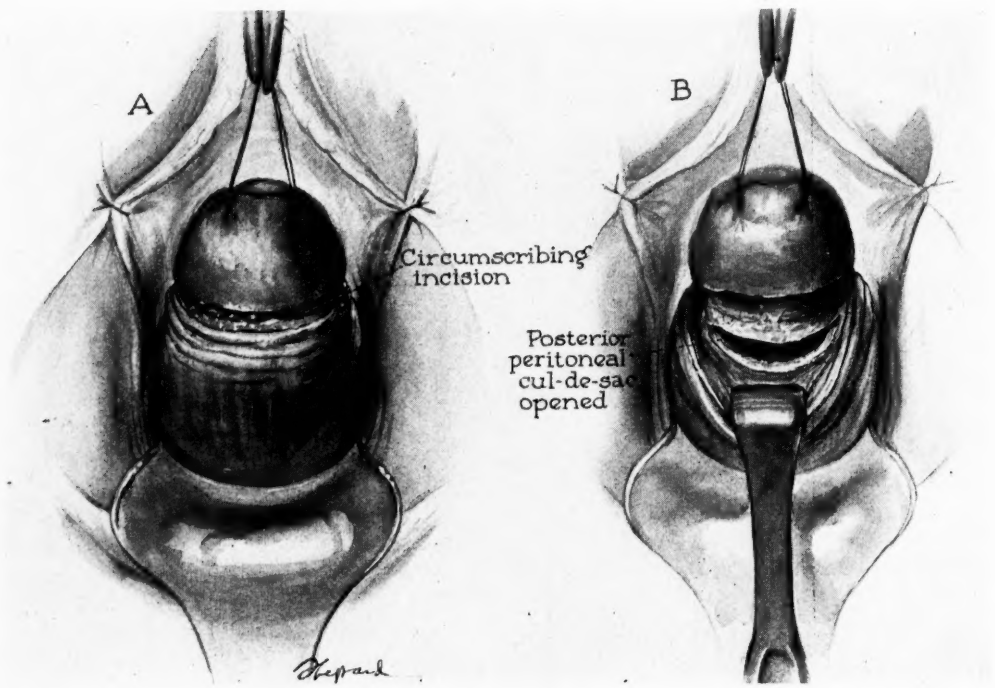

Fig. 2. A. Posterior circumscribing incision into vaginal wall. B. Opening of posterior cul-de-sac.

position. Just before the exteriorization of the corpus, we almost routinely do a guillotine amputation of the cervix; and the internal os is covered with sulfathiazole powder. We prefer to amputate the cervix because: first, it is easier to turn a rounded ball-shaped body as compared to a pear-shaped body; and second, we probably decrease the possibility of peritonitis as we do not contaminate the peritoneal cavity with the cervix. A uterus in the anterior plane of the pelvis is more easily delivered through the anterior cul-de-sac. A retroverted uterus is much more easily delivered through the posterior cul-de-sac.

The broad ligaments are clamped with straight Fischmann angiotribes from above downward, as in abdominal hysterectomy, and the uterus severed from the broad ligaments. The tissue in the broad ligament clamps is now transfixed. (Figs. 4 and 5)

The closure in a vaginal hysterectomy is performed according to the same principles as the closure in a total abdominal hysterectomy, namely, support of the vagina and peritonization. This is accomplished by sewing, *on either side*, the anterior vaginal wall, anterior peritoneum, round ligament, utero-sacral ligament, parametrium, posterior peritoneum, and posterior vaginal wall. After this is completed, interrupted sutures are placed through the anterior vaginal wall, anterior peritoneum, posterior peritoneum and posterior vaginal wall. We emphasize placing two figure-of-eight sutures just lateral to each angle to avoid latent hemorrhage; all the bleeding in these cases comes from the angles. (Fig. 6)

Subsequent to the completion of a vaginal hysterectomy we are of the

opinion that all cases should have a pelvic floor repair. The question of anterior wall repair depends entirely upon the amount of involvement, but a perineorrhaphy should be performed even though there is only a slight relaxation. Upon completion of the perineorrhaphy we insert a two-inch plain gauze pack into the vagina which is removed in twenty-four hours.

NEWER ASPECTS OF POSTOPERATIVE TREATMENT

The exact treatment of the patient after operation naturally depends on her postoperative course, but we resort freely to intravenous supply of fluids, blood and plasma if necessary. We administer routinely a daily dose of vitamin K of 30 mg. for two or three days to help control the postoperative vaginal

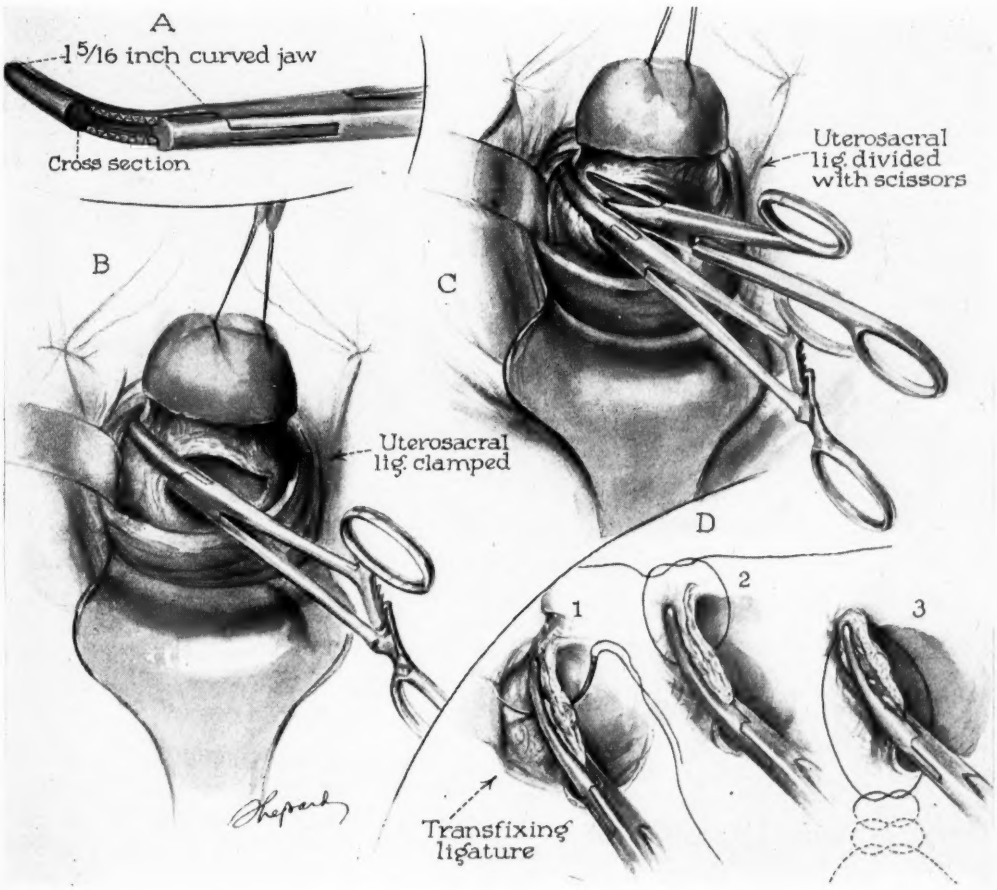

Fig. 3. A. Curved Fischmann angiotribe forceps showing longitudinal ridge which permits firm grasp of tissue. B. Clamping of utero-sacral ligament. C. Severing of uterosacral ligament. D. Transfixing uterosacral ligament with catgut. This type of suture material is used in all subsequent steps of the operation.

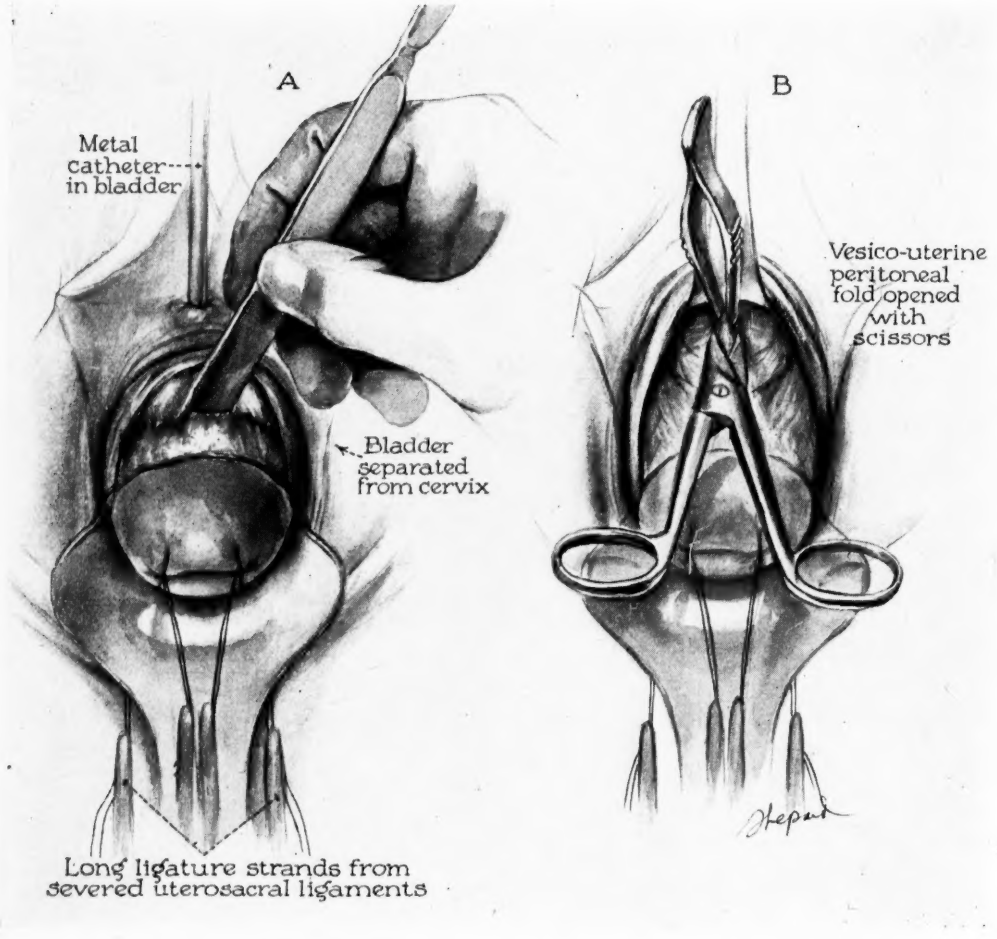

Fig. 4. A. Advancing bladder off cervix. B. Opening of anterior peritoneum.

wall oozing and use 3000 mg. of vitamin C daily for two or three days for good wound healing. These vitamins are given directly into the intravenous fluids, which are usually 1000 cc. of 5 per cent glucose in normal saline and 2000 cc. of distilled water in twenty-four hours. In one case which developed a postoperative extraperitoneal infection, sulfathiazole powder was used by insufflation into the vagina with excellent results.

COMPLICATIONS AND METHODS OF PREVENTION

We are of the opinion that some of the complications of vaginal hysterectomy are preventable, primarily by thorough systemic check-up of the patient preoperatively. *Hemorrhage,* which we have seen in a number of cases, very often does not occur until from eight to fourteen days postoperatively. This is probably due to sloughing of a vessel or

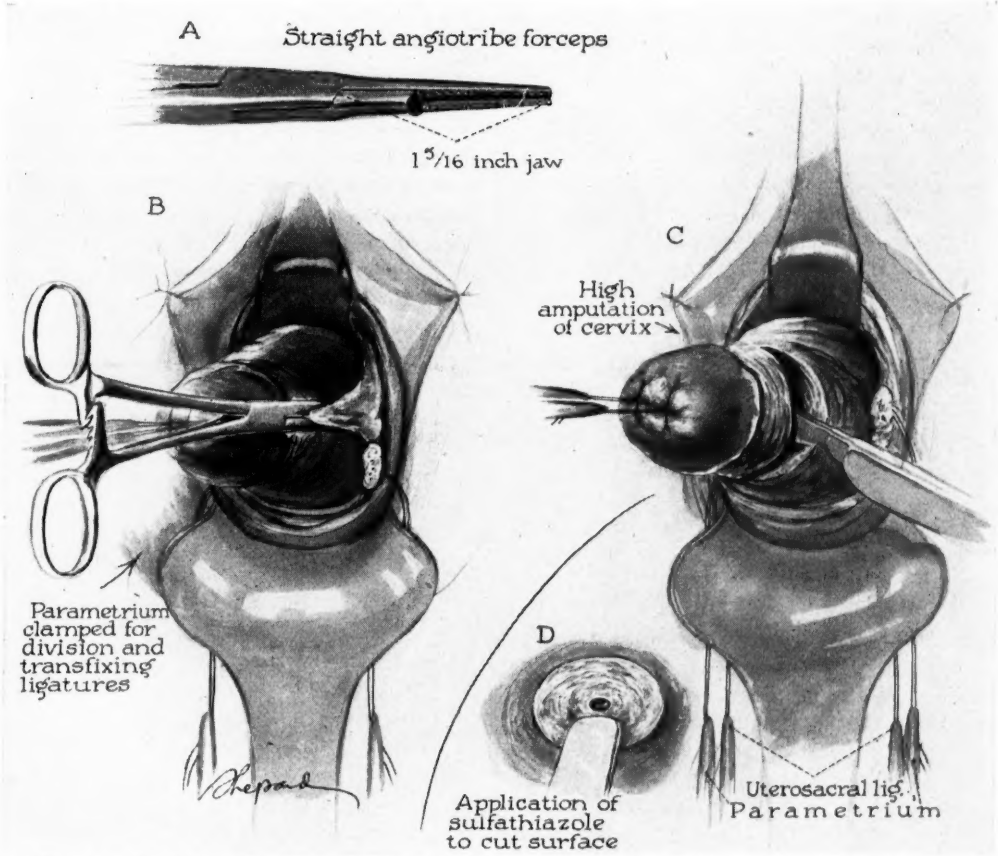

Fig. 5. A. Straight angiotribe forceps. B. Clamping of parametrium and lower portion of broad ligament. C. Showing ligatures on uterosacral ligaments and parametrium. High amputation of cervix. D. Sulfathiazole.

vessels secondary to a low-grade infection. This can probably be prevented by maintaining a normal PH (4-4.5) in the vagina preoperatively, and employing sulfathiazole insufflation treatments as soon as the diagnosis of low-grade infection is made.

We also feel that the figure-of-eight sutures placed just lateral to the angles during closure of the vaginal vault are distinct factors in preventing this latent bleeding. In practically all the postoperative bleeding cases which we have observed, the site of the hemorrhage was found to be in the angles of the vagina; and since we have been employing these "safety sutures," the complication of postoperative hemorrhage has not been observed.

Peritonitis is a very unusual complication. It may be averted by amputation of cervix before the turning of the uterus, and by placing sulfathiazole on the new cut surface, and into the peritoneal cavity just before closing as we have done routinely for several years. Also, careful preoperative preparation of the vagina as previously discussed, is a distinct factor in the prevention of this complication.

Prolapse of the vagina is a late complication which we have seen a few times

in the outpatient clinic. This can be prevented: first, by ruling out a neurologic condition which might be the primary cause of the descensus; and second, by incorporating the round ligament, parametrium and utero-sacral ligament into the vaginal vaults on either side.

Giving large doses of vitamin C in the intravenous solution for three days postoperatively is probably another factor in producing better immediate wound repair and therefore is of value in preventing this complication.

X-ray examination of the lower spine in all cases of nulliparas and those women who develop a procidentia after the birth of one child is imperative to rule out the presence of an occult spina bifida. If the latter condition is present,

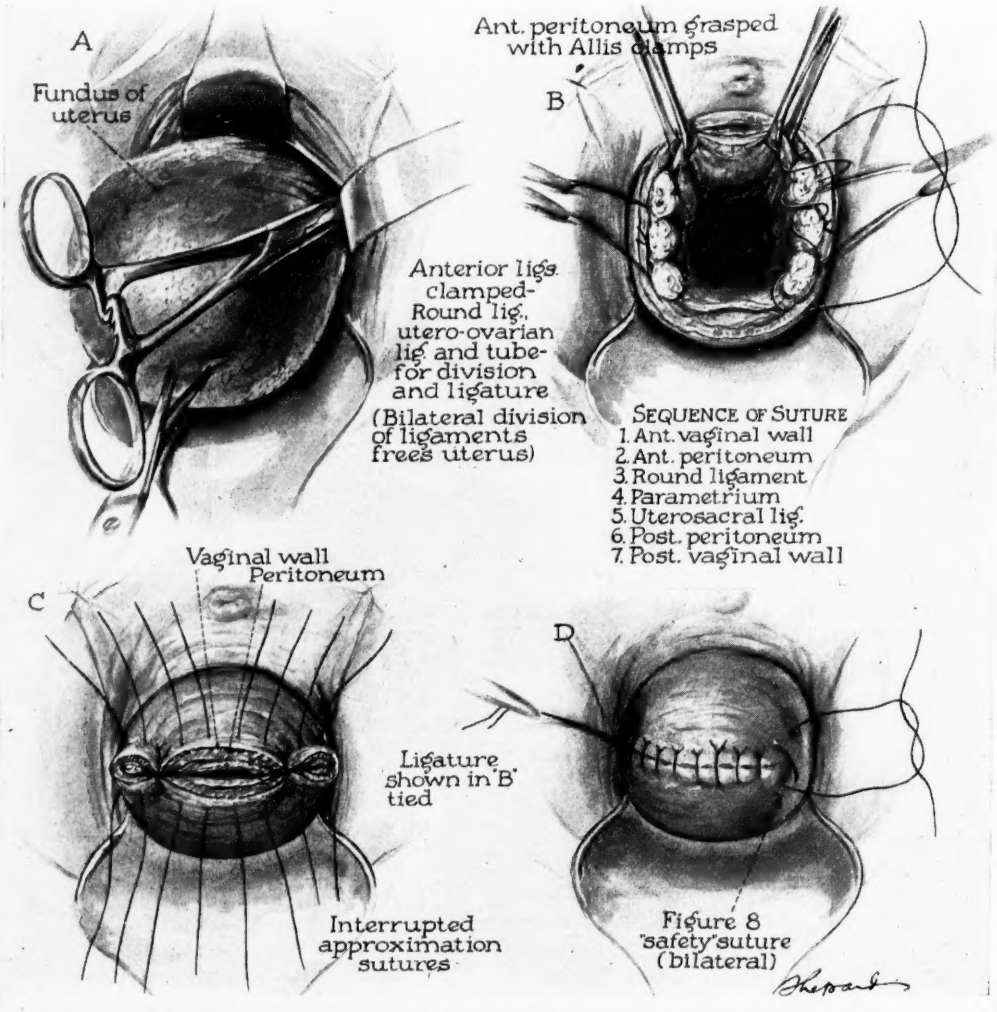

Fig. 6. A. Exteriorization of corpus. B. Combined closure of peritoneal cavity and support of vaginal vault. C. Interrupted sutures for completion of closure. D. Showing figure-of-eight "safety" suture.

it invariably will cause a prolapse, irrespective of the type of vaginal plastic surgery attempted. Therefore, it is paramount to include a roentgenogram in the medical preoperative check-up of patients presenting the above history.

Prolapse of the fimbriated end of the tube may be prevented by the careful approximation of the peritoneal surfaces when closing the vaginal vault. In addition, insertion of sulfathioze before closing decreases the possibility of infection and therefore allows for better wound healing.

Injury to the ureters, a common dread of the occasional operator, can be prevented by careful exclusion of cases of intra-ligamentary fibroids. Further, when the uterus is disconnected from the broad ligaments and parametrium the clamps must "hug," be placed parallel to, and have their tips pointing toward the cervix and corpus.

Bladder injury is prevented by placing a metal catheter in the bladder whenever in doubt as to the relationship between the bladder and cervix. If, however, the bladder is accidentally incised, interrupted Lembert sutures should be placed into the bladder wall, and a retention catheter inserted into the bladder. The bladder wound will heal by primary intention, and a vesicovaginal fistula will be prevented.

Bowel injury may be averted either by not performing a vaginal hysterectomy following a previous laparotomy or by carefully walling off the bowels with a tail sponge and thus preventing the intestines from entering the operative field.

Shortening of the vagina and the accompanying dyspareunia has not been encountered in our cases. This may be attributed to the fact that we suture the round and utero-sacral ligaments into their respective lateral vaginal angles thus adequately supporting the vaginal vault and thereby maintaing normal vaginal depth.

CONCLUSIONS

Vaginal hysterectomy has many advantages over the abdominal removal of the uterus; the reasons, indications and contraindications have been discussed. The preoperative measures, both medical and gynecologic, and the surgical technic is presented, aided by illustrations. The postoperative treatment and prevention of complications are considered.

Several innovations are suggested, such as the use of pitocin, vitamin K and vitamin C, continuous caudal anesthesia, and the employment of the sulfonamides, which seem to have materially aided in the success of the procedure.

It is with the hope of simplifying and clarifying this problem, and thereby securing more gratifying end-results, which prompts us to present this communication both to the general surgeon as well as to the gynecologist.

SUMMARY

In our experience, the morbidity and mortality in vaginal hysterectomies is definitely less than a corresponding number of cases of total abdominal hysterectomies. Patients who have undergone vaginal hysterectomies very often sit up in a chair on the third or fourth day after operation and as a rule leave the hospital twelve to fourteen days postoperatively. The early active movements of the patient and the early sitting up in a chair seem to be important in the prevention of pulmonary complications. The immediate and latent complications are definitely minimal.

Too much emphasis cannot be placed upon the ultra-importance of preparing these patients preoperatively, especially by very careful systemic inventory and

eradication of all possible factors which might in any way impede the operative or postoperative recovery of the patient. We think it important to prepare correctly the hydrogen ion concentration of the vagina as that might be a factor in decreasing the morbidity and mortality. We suggest the use of some of the newer armamentaria such as pitocin, sacral block or continuous caudal anesthesia, blood, plasma, sulfonamides and intravenous vitamin K and vitamin C.

SUMARIO

En nuestra experiencia, el estado morboso y mortalidad en la histerectomía vaginal son definitivamente menores que en el correspondiente número de casos de histerectomía abdominal total.

Las pacientes que se han sometido a la histerectomía, con frecuencia pueden sentarse en una silla al tercer o cuarto día, y por regla general pueden salir del hospital doce o catorce días después de la operación.

La actividad temprana de la convaleciente, sentada en silla en los primeros tres o cuatro días después de la operación, parece ejercer una influencia profiláctica contra las complicaciones pulmonares.

No podemos encarecer demasiado la preparación de la paciente para la operación, especialmente por medio de un esmerado inventario del estado orgánico y funcional del sistema a fin de erradicar todos los factores que pudiesen impedir el curso normal de la convalecencia.

Creemos de gran importancia la preparación exacta del PH de la vagina como factor en la disminución de la morbilidad y mortalidad. A ese fin sugerimos el uso de algunas de las armas en el arsenal médico moderno tal como pitocina, bloques-sacral o la anestesia caudal continua, transfusión de sangre, plasma, sulfonamidas y vitamines K y C, vía intravenosa.

RÉSUMÉ

D'après notre expérience la morbidité et la mortalité de l'hystérectomie vaginale sont beaucoup moins élevées que celles qui accompagnent l'hystérectomie abdominale totale. Les malades après une hystérectomie vaginale fréquemment peuvent s'asseoir après le quatrième ou le cinquième jour et ordinairement quittent l'hôpital deux semaines après l'opération. L'activité du malade et la position assise précoces du malade paraissent prévenir les complications pulmonaires.

On ne peut pas placer trop d'emphase sur la nécessité de préparer ces malades avant l'opération et d'éliminer tous les facteurs qui pourraient retarder la guérison opératoire et le rétablissement postopératoire. Il faut préparer correctement l'ion hydrogène du vagin afin de diminuer la morbidité et la mortalité. Nous suggérons l'emploi de pitocine, le blocage sacré ou l'anesthésie caudale continuel, transfusion de sang ou de plasma, les sulfonamides, les vitamines C et K administrées par voie intraveineuse.

Выводы

В нащей практике болезненность и смертность при вагинальных гистеректомиях значительно ниже, чем при абдоминальном удалении матки. Наши больныя довольно часто уже сидят на третьем дню и, как правило, оставляют госпиталь на двеннадцатом или четырнадцотом дню. Раннее вставание и сидение играют важную роль в предупреждении легочных осложенений.

Авторы подчеркивают роль систематического уследования и до-оперативной подготовки. Необходимо исправить концентрацию ионов водорода влагалища, так как последняя может с'играть важную роль в болезненности или смертности. Автор также рекомендует питосин, сакральное обезболевание, переливание крови или плазмы, сульфа препараты и витамины К и Ц.

Attempts to Influence Spondylarthritis Ankylopoetica by Means of Implantations of Toxic Goiter

FELIX MANDL, MD., F.I.C.S.
JERUSALEM, PALESTINE

BECHTEREW, in 1892, was the first to draw attention to a condition which he called spondylarthritis ankylopoetica and which was subsequently named after him. Following upon this, Struempell, in 1897, described a similar affection, and Pierre-Marie, in 1898, the so-called "spondylose rhycomyélique." But it is of no importance to distinguish between the individual types referred to, since it makes no difference whether the affection spreads in an upward or downward direction in the spinal column. It is, moreover, generally known that in all affections involving the spine there may be an associated radiculitis from irritation of the spinal nerves.

Although sometimes differential-diagnostic distinction between spondylarthritis ankylopoetica and certain types of atrophic or hypertrophic spondylarthritis is not easy and the condition may be mistaken for one of the several types of infectious spondylarthritis, in the great majority of cases, neither clinical nor x-ray identification provides particular difficulty.

Spondylarthritis ankylopoetica preponderantly attacks the male sex, its earliest symptoms usually appearing in the second or third decade. The condition is characterized by rapidly spreading ossification of the small ligaments of the spinal column to the areas above and below those first attacked. At a later stage the hip joint also becomes involved, and a union between the fifth lumbar vertebra and the sacro-iliac joint, a very typical feature of this disease, is formed.

Clinically, it is characterized by an increasing degree of stiffness of the spine, immobility, local as well as radiating pain. Thoracic respiration is more and more reduced in the course of time, and pulmonary complications are a frequent accompaniment.

Radiologically, the earliest manifestations are not easily identified. It has frequently been pointed out that in the initial stages the patients may present atrophic spondylarthritis or "sacro-ileitis." There is no doubt that spondylarthritis ankylopoetica may occasionally develop on the basis of such conditions, but we also know that atrophic as well as hypertrophic spondylarthritis and sacro-ileitis may continue to be present indefinitely without this development, irrespective of medical treatment or type of therapy.

The x-ray appearance of a fully developed case of spondylarthritis ankylopoetica scarcely allows for any diagnostic doubt. "Bamboo-shape" of the

spine, ossification of the small ligaments, fusion of the spinal processes, disappearance of the intervertebral spaces and an eventual osseous union between the fifth lumbar vertebra and the sacro-iliac joint are the unmistakable symptoms of this particular affection.

Nothing whatever is known about its etiology. Certainly, neither infection nor inflammation play any part in its causation (at least in the type referred to in this article) even in the presence of an increased blood sedimentation rate. Nothing but unfounded theories and the usual vague speculation have so far been put forward in an attempt to give an etiologic explanation. There exists no prophylactic therapy and, in the great majority of cases, even symptomatic therapy has not yielded very satisfactory results. The anti-rheumatics give little relief, and the results of gold therapy are often also only negative (Key and Rosenfeld). Exercise therapy has also been advocated (Green), but in my patients I have not seen much benefit from this method either.

The data available on the results of roentgen therapy show that in some cases pain was actually relieved. That x-ray therapy should, however, be able to bring about genuine remissions or that it might even constitute a prophylactic measure to prevent ankylosation in "early cases" (Scott) is, in my opinion, neither probable nor has any proof of this theory been offered.

The operative method evolved by Opel and Ssamarin to influence spondylarthritis ankylopoetica operates on endocrine lines. The authors suggested parathyroidectomy in order to lower, in this way, the increased calcium level of the blood (Schkurov.) Apart from the fact that increased blood calcium is only very rarely encountered in spondylarthritis ankylopoetica, a number of authors who tried it (Chifoliau and Brain, Donati, Alessandri, Kamel Hussein) eventually abandoned the method since it produced no satisfactory results. I have also accepted this standpoint as a result of my own experience, although I must admit that initial success is possible. The authors who advocate this method emphasize the fact that a later ankylozing of the arthritic spine may be prevented. It should be pointed out, however, that those operations were not performed on already ankylosed spines.

A new approach to the problem involved checking the excessive ossification connected with this affection by inducing decalcification in the organism. Theoretically, this was a sound idea though—as will be seen below—the results proved somewhat different from what we had expected.

Conditions associated with high degree decalcification of the skeleton, the cause of which has been identified, are: (1) osteitis fibrosa generalisata of Recklinghausen, which develops as the consequence of a parathyroid tumor and the resultant over-stimulation of parathyroid function. Removal of the tumor is likely to effect the disappearance of the osseous process (Mandl); (2) chronic renal insufficiency in adults (Ginzler and Jaffé); (3) chronic fistulas of the gall bladder through which large quantities of gall fluid may escape; (4) hyperthyroidism and thyrotoxicosis. Here Askanazy and Rutishausen found decalcification to be a so frequent and unmistakable accompaniment that they considered the condition a "latent osteodystrophia fibrosa." Aub, Bauer and coworkers held a similar viewpoint, and Winkler even reported on spontaneous fractures of the spinal column in connection with hyperthyroidism.

The experimental basis to these theories was provided by Bodenheimer and

Barcham, Parkon, and Michaud (*cf.* Crotti).

Surgically, only the artificial production of hyperthyroidism could be taken into account, apart from decalcification of the skeleton through artificial production of hypervitaminosis D, or the treatment with large doses of parathormone collip, which involves a certain risk in the human subject, producing far-reaching alterations in the calcium phosphate metabolism with all the dangers connected with these changes. But even assuming this experiment would prove successful, was the active agent acidosis, increased metabolic rate or toxin? As will be seen later, the subjective improvement which was soon recorded in out-patients was, indeed, closely linked to a hyperfunction of the thyroid, but was in no way connected with decalcification.

In four cases, thyrotoxic goiter implants (taken from a patient from the same blood group) were made into the posterior rectus sheath of the spondylarthritic patient several times.

One case presented chronic recurrent progressive infectious polyarthritis. The history of this patient as well as the x-ray appearance of his bones show that this case—which, by the way, was also improved—cannot be included in the Bechterew group. Among the three typical cases of spondylarthritis ankylopoetica Bechterew, two were markedly improved, while one relapsed after a period of improvement of eight months.

The case histories are given here as briefly as possible:

CASE REPORTS

CASE 1. Josef A., aged 23, farmer. On admission he was in a state of severe mental depression with suicidal tendencies. With the exception of non-recurrent malaria he had always been healthy and had never had any sort of fever. Four years previous to admission he had begun to feel pain in his left thigh, a year and a half later pain also appeared in the region of the lower ribs. Stooping soon became painful too, and since that time the patient's capacity of bending his spine forward or backward was more and more reduced, so that he was eventually unable to bend down or get up from bed.

Earlier therapy: deep roentgen therapy, gold therapy with no success.

Laboratory findings: blood sedimentation rate: 2 hrs. 50 min., BMR 0; blood calcium: 10.3 mg. per cent; blood phosphorus 3.9 mg. per cent.

X-ray examination revealed a bamboo-shaped spine involving the entire thoracic portion; ossification of the sacro-iliac ligament and the posterior longitudinal ligament of the thoracic and lumbar portions; dense shadow in the region of the acetabulum on both sides. On the whole, the x-ray appearance indicated the presence of a fully developed spondylarthritis ankylopoetica.

Therapy: From the 15th to the 20th of August the patient received 1 gm. (0.06) thyroidin three times a day. On the 20th of August, implantation of thyrotoxic goiter (from a patient with BMR of +90) was made into the posterior rectus sheath. The wound healed by first intention.

September 4: The patient was able to bend down more easily and had less pain. September 7: implantation of thyrotoxic goiter into the posterior rectus sheath (per primam healing of the wound). *September 23:* The patient spent the whole day out of bed, he walked effortlessly and painlessly. The mobility of his spine had also improved. He was able to stoop down and pick things up from the floor and to get up from his bed unassisted. *September 28:* BMR +31. Roentgenologically, no change. The patient was re-admitted for follow-up examination on *January 20, 1942:* BMR at this time +32; blood calcium: 12.5 mg. per cent; blood phosphorus; 3.26 mg. per cent; phosphatase in the blood: 7.9 mg. per cent; roentgenologically, no skeletal changes.

His general condition was similar to that of Sept. 23, 1941. Another follow-up examination was made on *May 9, 1942.* On this occasion, the patient told us that he was able to work in an agricultural settlement for many hours a day. Now and then he had neuralgic

pain in his left thigh, which showed a ready response to intramuscular novocain injections. His general mobility was much improved. After eight months, however, suddenly, for no apparent reason, his condition deteriorated rapidly. He became bedfast again and gradually developed the same symptoms as had been present before operation. Deep-roentgen therapy had no effect. He was admitted to the hospital in September 1942, with the following laboratory findings: blood calcium: 10.2 mg per cent; blood phosphorus: 8 mg. per cent; BMR +22; circulation time: 10 sec., blood sedimentation: 4-5 hours.

X-ray therapy was tried again.

Résumé: An advanced case of Bechterew's disease was markedly improved (for a period of eight months) by a toxic goiter implant, with subsequent relapse into the original condition. The activity of the implantations could be ascertained after as many as thirteen months (increased BMR). Skeletal changes have, however, so far *not* been identified.

Case 2. David W., aged 48, chemist. Family history, negative. In 1921 he began to feel pain in the loin region, in 1928, in his shoulders and in the cervical spine. In 1928, spondylarthritis ankylopoetica (Bechterew) was diagnosed by means of x-rays. Gradually he developed such a degree of stiffness that he could not turn his head and the cervical, as well as the thoracic and lumber spine, was completely immobilized, while the movements of his hip joints were also restricted. He complained of much pain but the temperature was always normal.

Early therapy: He had been to Tiberias to have baths, and had been treated by pyramidon, atophan, exercise therapy, typhoid vaccine, gold therapy (the latter in a hospital over a period of several months), but from none of these measures did he derive any benefit.

On admission, Oct. 10, 1937, he presented a completely immobilized cervical, thoracic, and lumbar spine, as well as both hip joints. He could not walk and was scarcely able to stand up. His head was drawn down with the chin fixed to the chest and could not be moved. Stooping down was out of the question. There was flexion contracture of both hip joints. Slight bending of the knees was possible. An attempt to influence the contractures in general anesthesia and to fix a plaster-of-paris dressing failed.

The patient was readmitted on October 23, 1941. Although in the meantime he had received hormone and x-ray therapy, no improvement was recorded and his right hip joint was even stiffer than before. At this time the entire vertebral column was stiff, the chin firmly attached to the chest, no turning possible, both hip joints ankylosed. Slight bending of knee joints was still possible. The patient spent the greatest part of the day motionless in bed, supported by cushions. When he tried to get up, which he could only do with assistance, he was only able to move about on two crutches with greatest effort. Three implantations of thyrotoxic goiter were made into the posterior or rectus sheath on both sides. First implantation, *November 12, 1941;* second implantation, *November 24, 1941;* third implantation, *November 30, 1941*). Two wounds healed by first intention.

November 21: The patient spontaneously informed us that he was now able to raise his head a little. *November 27:* Raising and turning of his head had become much easier. *December 7:* Suppuration and sloughing of one of the implantations; *January 4:* The patient was now able to change his position in bed more easily than before, following diathermy treatment. *January 24:* Pain of the right hip joint was successfully treated by intra-articular percaine injections. *January 30:* The patient walked about in the halls and rooms with a walking apparatus. It cost him some effort but he carried himself more erect and was now able to remove his chin from the chest. *March 1:* He walked with comparative ease on his crutches. *March 10:* He walked with two sticks. *March 15:* The patient was discharged with all signs of a subjective as well as objective improvement. (*cf.* Fig. No. 1, a, b, c and d.)

Before admission to the hospital and shortly before he left, *laboratory findings* showed: red blood picture, negative; white cell count: Oct. 28: 4000 leukocytes; Jan. 1: 9800 leukocytes; March 1: 6600 leukocytes; calcium and phosphorus, previous to and after the operation, normal; blood sedimentation: November 1941: one hour; March, 1942: 1 hr. 50 min.;

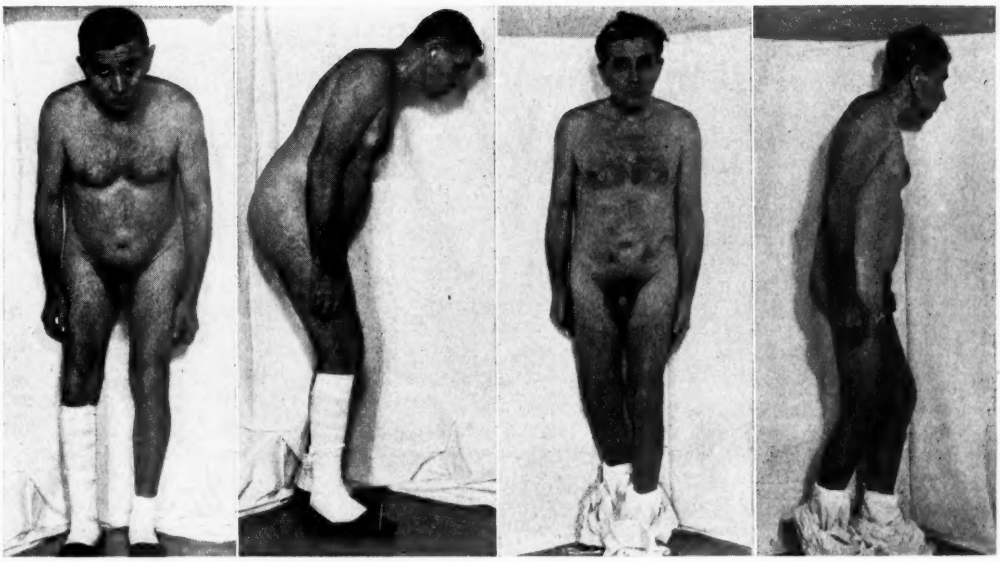

Fig. 1. (a) Maximal erection of the body before operation; (b) maximal erection after operation; (c) maximal erection before operation *en profile;* (d) maximal operation after operation *en profile.*

BMR, October 27, 1941, +15; December 26, 1941: +55; *x-ray:* no changes of the skeleton.

In June, 1942, the patient was readmitted for follow-up examination. In the meantime his condition had constantly improved. Supported by two sticks, he was now able to move about quite easily. He was also able to get up from his bed without assistance and had much less pain. He had, in the meantime, had renal colics.

Laboratory findings in June, 1942: Glucose, 88 mg. per cent; urea, 35 mg. per cent; NaCl, 6.0-7.3 mg. per cent; phosphorus, 3.85-3.2 mg. per cent; phosphatase, 4.6 mg. per cent; calcium, 10.6-11.0 mg. per cent; total protein, 8.08 mg. per cent; albumin, 4.88 mg. per cent; globulin, 3.2 mg. per cent; xanthoprotein, 2.5 mg. per cent; a/g, 1.6 mg. per cent; blood sedimentation: 2 hrs. 50 min.; BMR +30.

X-ray of the bones involved revealed unmistakable, although not very marked, decalcification, compared to radiograms of the skeleton taken in 1941 (*cf.* Figs. 2, a and b and 3, a and b). Renal calculi could not be discovered.

Follow-up examination in October, 1942: For the first time the patient walked *freely with no support,* with his legs slightly apart. His general mobility, as a whole, had also been further improved. After an interval of many years, he was now taking up his professional work again.

Résumé: An advanced case of Bechterew's disease with all typical symptoms and x-ray manifestations, was improved by three implantations of thyrotoxic goiter, the effect of which could be followed up for and was still present after eleven months. For this rapid improvement, however, factors other than the decalcification (which only appeared after the lapse of eight months) had apparently to be held responsible.

Case 3. M. F., aged 27. Nine years previously the patient had for the first time felt pain in his legs, followed three years later by pain in his thighs. After another three years, pain appeared in his cervical spine. He began to experience more difficulty in turning his head and in stooping down. His spine as a whole assumed a certain degree of stiffness with lordosis of the lumbar portion.

On admission the patient's general condition was satisfactory. He had no difficulty in getting up from a horizontal position, but

bending his spine forward required some effort. All movements of the cervical spine and abduction of his thighs were reduced.

Roentgenologic findings: Typical spondylarthritis ankylopoetica of the cervical and lumbar spine; arthritic changes of the hip joints.

Chemical findings: blood sedimentation, 1 hr. 4 min.; urea, 21 mg. per cent; glucose, 87 mg. per cent; calcium, 11.8 mg. per cent; BMR +2; p_H 7; blood pictures, normal.

First implantation of thyrotoxic goiter on *April 27, 1942;* second implantation, *May 18, 1942.*

Since May 8 all movements of the head had become much less difficult, *May 26:* BMR, +18; *May 27:* The patient had lost 5 kg., but felt well; *June 12:* he walked with less effort. All movements of his head, which were greatly restricted, were now possible except for bending to one side. Abduction of the thighs was completely normal. Tachycardia (80-120) on exertion.

July, 1942: BMR +22; slight tachycardia; no emaciation. Roentgenologically, no change.

October, 1942: Improvement continued. The patient informs us that for many years he has not had such a good summer as this one (1942).

Résumé: Moderately severe, typical case of Bechterew's disease. Definite improvement for seven months, but with no change in the x-ray appearance of the bones.

Apart from those cases in which operation was performed, two other moderately severe, typical cases of Bechterew's disease were given thyroidin internally. Temporary improvement was recorded during the period of medication. As soon as this was discontinued, all the original subjective symptoms reappeared, while the objective ones had never changed (x-rays). We abstain from giving the case histories here.

DISCUSSION

A new approach to the problem of effective treatment of spondylarthritis ankylopoetica is fully justified in view of the unsatisfactory results so far obtained by any therapeutic measure. Implantations of thyroid gland have repeatedly been tried (Crotti). Recent investigations and our own experiences show that greater safety is obtained when the donor and the recipient are of the same blood group. Additional administration of thyroidin or anterior pituitary lobe after the implantation is recommended in order to ensure the greatest measure of success.

After thyrotoxic goiter implantation the patients invariably developed slight thyrotoxic symptoms. The basal metabolic rate as well as the pulse rate was increased, the circulation time was reduced, and the patients lost weight. In no case, however, did these symptoms assume alarming proportions. Such a

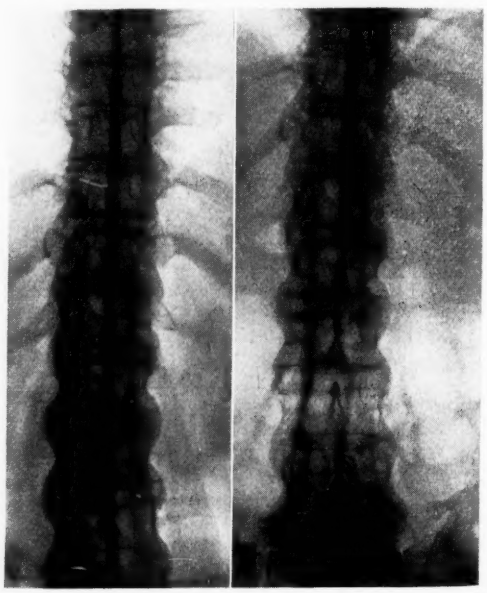

Fig. 2. (a) X-ray before operation, showing typical symptoms of Bechterew's disease, calcification of all small ligaments, bamboo-shaped spine, complete osseous communication between the posterior processus; (b) skeletal rarefication after operation revealing interrupted line of posterior spinal processus with clearly discernible intervertebral spaces.

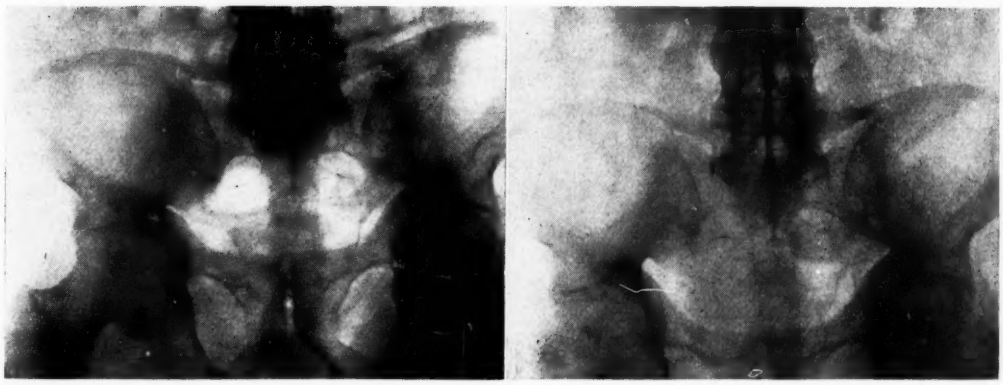

Fig. 3. (a) Pelvic skeleton prior to operation. (Note communication between transverse processus of the 5th lumbar vertebrae and ileum); (b) marked, patchy decalcification of the head of the right femur after operation, with diminished calcification of the transverse process of the 5th lumbar vertebrae and clearly discernible intervertebral spaces.

condition may be remedied by immediate removal of the implant.

Rather strangely, in all our cases the first indication of a beginning improvement appeared very soon, probably owing to an increased thyroid function, which rapidly intensified the peripheral blood flow, thus favorably influencing muscular rigidity as well as pain.

The patho-physiological manifestations of thyroid hyperfunction which, naturally, also exist if this hyperfunction has been induced artificially, must probably be held responsible for the rapid improvement. Thus, the cardiac output is increased (Fullerton and Harlop, H. Zondek), the circulating blood volume, the velocity of the blood flow, the pulse rate, the pulse pressure, and the vital capacity are also increased, when the basal metabolic rate is high, in patients with hyperthyroidism, while the circulation time is decreased (Gibson and Harris, Blumgart, Gargil and Giligan, Stewart and Evans).

Stewart and Evans found that the peripheral blood flow in patients with hyperthyroidism was increased and that there is a linear relation between the basal metabolic rate and the peripheral blood flow.

Only in one of our three patients—and this a considerable time later—decalcification of the skeleton could be ascertained, thus furnishing proof of the correctness of the basic principle on which the method had originally been involved.

It is, therefore, actually possible, through implantation of thyrotoxic material, to induce decalcification in the human skeleton.

Stress should, however, be laid upon the fact that spondylarthritis ankylopoetica is here by no means considered a "minus condition" of the thyroid gland, and no indications point to such a possibility. We are, therefore, still in the dark as to the precise nature of the disease. The results of implantations as well as of internal thyroid therapy are probably merely symptomatic.

Nevertheless, in none of our patients were we dealing with one of the familiar remissions, but, on the contrary, with an improvement of such a nature as had not been achieved with any other therapeutic measure in those particular patients.

SUMMARY

Only unquestionable Bechterew cases with the typical symptoms of an ad-

vanced stage, clinically as well as roentgenologically, were included in our investigations.

In two of three cases, implantations into the posterior rectus sheath of thyrotoxic goiter produced marked improvement. In one of them, moreover, decalcification of the skeleton was noted after eight months.

In two less severe cases, internal hormone therapy with thyroidin was given and both improved for the duration of the treatment.

The new method of treatment is merely considered a symptomatic measure. There is no indication of a possible relationship between spondylarthritis ankylopoetica and thyroid function. The effect probably occurs concurrently with increased basal metabolic rate.

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SOMMAIRE

Seulement des cas incontestables de Bechterew dans lesquelles le diagnostic fut confirmé par les symptômes cliniques et par les rayons-x furent soumis à nos recherches.

Dans deux de trois cas, l'implantation de substance thyrotoxique de prévenance goiteuse dans la gaine postérieure du droit abdominal fut suivie d'une amélioration notable. Dans un de ces deux cas, on observa la décalcification du squelette huit mois après l'arrêt du traitement.

Dans deux cas moins advancés l'ingestion et de thyroidine fut durant le traitement accompagnée d'amélioration cette méthode de traitement n'est recommandée que comme procedure symptomatique.

Il n'y a aucune indication d'un rapport possible entre la spondylarthrite ankylopoëtique et les fonctions de la glande thyroide. Les effets probablement sont dus à une augmentation d'activité métabolique.

SUMARIO

Solamante casos de Bechterew con síntomas típicos en estado avanzado, por el aspecto clínico y la radiografía, son incluídos en nuestra investigación.

En dos o tres casos implantaciones o injertos de tejidos thyroideos, en la vaina posterior del *rectus,* en estado tóxico, produjo marcada mejora. En uno de estos casos aún más se notó decalcificación del esqueleto después de ocho meses.

En dos casos, ménos severos, la administración interna de la hormona o terapéutica de la thyroidin fué empleado, y ambos casos mejoraron durante el tratamiento.

El tratamiento nuevo o, a mejor decir, el nuevo método no es más que un manejo sintomático, pues no hay relación entre espondiloartritis anquilopoetica y la función de la tiroidea. El fenómeno probablemente ocurre simultaneamente con el aumento en el grado del metabolismo.

Выводы

Автор включает в свои наблюдения только те случаи Бехтеревской болезни диагноз которых не подлежит сомнению и которые показывают типичные клинические симптомы и рентгеновские знаки фазы болезни. В двух случаях имплантации части тиротоксического зоба в фацию мускули ректи дала хороший результат. В одном из них была отмеченка через восемь месяцев декалцификация скелета.

В двух более легких случаях лечение тироидином также дало хороший результат на протяжении срока лечения.

Этот новый метод нужно понимать только в смысле симптоматического лечения, ибо не существует какого-то ни было указания на связь между спондилартритис анкулопостика и функцией щитовидной железы. Возможно, что эффект происходит современно с повышением обмены веществ.

Sobre el Tratamiento de las Fracturas del Craneo en los Niños*

(Treatment of Fractures of the Skull in Children)

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SUMMARY

It is pointed out that fracture of the skull in children is an accident relatively benign and is followed under medical treatment by low mortality. The treatment differs according to the condition present—compound (open) or closed (simple) fractures. The first type represents a small minority, and must be treated in conformity with the rules of general surgery. In the second type, the treatment should be exclusively medical, except in cases of depressed fractures or with persistent hypertension of intracranial origin. In the exceptional cases requiring surgical intervention, the operation of choice is decompression trephining, unilateral or bilateral (Cushing).

*Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

EL ESTUDIO de ejemplares patológicos de extrema rareza, las investigaciones sobre enfermedades exóticas, la revelación de síntomas o lesiones, antes desapercibidas, que aclaran y afirman el diagnóstico; la nueva interpretación patogénica de una dolencia oscura y mal definida; y, sobre todo, el hallazgo de un agente etiológico desconocido; de una técnica original, de una arma terapéutica eficaz, son y, naturalmente, deben ser los temas favoritos de los artículos, de las tésis y de los trabajos que nutren los periódicos científicos y los anales de las conferencias médicas. Pero esa tendencia, justificada desde luego, impide, en ocasiones, que se vuelva la vista a viejos problemas que, por la incesante renovación de los conocimientos, por la modificación de las costumbres y los métodos de vida, recuperan su importancia y cobran caracteres de actualidad. Tal sucede con el extenso grupo de lesiones que hoy abarca la traumatología, como inevitable consecuencia de la difusión, quizás excesiva,

de los deportes violentos y la generalización del trasporte motorizado. Con más, en nuestros dias, la brutal forma de guerra por medio de bombardeos aereos sobre pueblos y ciudades.

Tal ocurre, en primer término, con las infinitas variedades de fracturas y, en especial, con las fracturas del craneo, antes de escasa frecuencia, hoy de observación cotidiana. Y en este preciso grupo, sorprende la extensión y minuciosidad con que suele tratarse el capítulo de las fracturas del craneo, desde un punto de vista general, pero haciendo escasa o nula mención especial, de los aspectos peculiares que esta lesión presenta en los niños. Apenas si en la mayoría de los libros o artículos se hace hincapié sobre la edad de los accidentados, o la distinta frecuencia con que se observan determinadas localizaciones en los niños y los adultos.

Tales circunstancias y la convicción que me asiste de que diversos factores de órden anatómico y fisiológico, imprimen carácter proprio a las fracturas craneales en el niño, modificando, a su vez, la índole del diagnóstico, del pronóstico y del tratamiento, me han movido a tocar aquí este tema, desde un punto de vista clínico, refiriéndome a poco más de doscientos casos tratados en los últimos quince años, en mi servicio del Hospital "Dos de Mayo," en compañía de los Doctores Cárlos Prontzel y Abel Delgado. Ya en años pasados hice referencia al mismo asunto, con motivo de las "Jornadas Neuro-psicquiátricas "celebradas en Lima, ocasión en la cual comenté un número de accidentes inferior al que ahora consigno.

Al observar el número de casos cronológicamente, se destaca el aumento gradual, año por año, mucho más acentuado en los tiempos recientes, paralelamente al desarrollo del tráfico mecanizado. Y así, fueron ocho los casos anotados en el primer año de la serie y 29 en 1940.

La prioridad del tráfico urbano, como agente causal de los accidentes se refrenda en la clasificación que aparece enseguida:

Acc. de tráfico.....	129
Causas ignor.	37
Caídas	28
Armas contundentes	12
Total	206

En realidad es mayor la cifra atribuíble a los "accidentes de tráfico," pues los que se consignan en el grupo "causa ignorada," fueron niños conducidos al hospital por agentes de policía o familiares que no suministraron datos concretos, pues recojieron a los pequeños pacientes de la vía pública, abandonados allí, probablemente, por los causantes del atropello.

Con la denominación "caídas," se cuentan los que se precipitaron de algún edificio. En fin, aparecen los provocados por agentes vulnerantes, cantos de piedra, palos y otros objetos lanzados o esgrimidos en las riñas infantiles.

La edad de los accidentados oscila de 5 a 15 años, distribuída así:

Edad—	5	6	7	8	9	10	11	12	13	14	15
Casas—	12	15	21	28	31	13	19	17	11	18	23

Total 208

CONSIDERACIONES ANATOMO-PATOLÓGICAS

En las fracturas del craneo precisa considerar las lesiones del pericraneo, las del esqueleto, de las meninges y del encéfalo. Las cubiertas del craneo presentan por su abundante irrigación y la especial estructura del cuero cabelludo considerable propención a las hemorragias profusas, aún tratándose de heridas pequeñas, que no son fáciles de cohibir, y además la dificultad de realizar rápida y segura antisepsia por la presencia del cabello. Pero aparte estas circunstancias obviables con especiales precauciones, las heridas de esta zona se tratan como

las demás de las cubiertas cutaneas, y no revisten gravedad por si mismas, sino en cuanto a la posible continuidad de la sepsis hacia el casquete oseo y por intermedio de él al contenido meningoencefálico.

Las lesiones o óseas de la caja craneana se refieren a la bóveda, a la base o los dos segmentos al mismo tiempo. En épocas pasadas se creía que toda fractura de la base era simple irradiación de una fractura de la bóveda. Las investigaciones post-morten y los rutinarios exámenes radiográficos han demostrado, plenamente, que existen fracturas basales sin lesión alguna de la bóveda. Es interesante conocer la distribución de los casos que hemos observado según su localización.

Base	48
Bóveda	85
Irradidas de bóveda a base o vice versa.....	37
Indeterminadas	38
Total	208

No es posible garantizar la exactitud matemática de esta distribución, ya que en muchas ocasiones es relativo el valor de los signos y síntomas de que se dispone para formular el diagnóstico, pero sí afirmamos, categóricamente, que en todos los casos hemos agotado los recursos clínicos, radiológicos y de aboratorio, para apreciar la localización con la mayor certeza posible.

Las estadísticas que conocemos de fracturas del craneo en los adultos, y en aquellas que consignan todas las edades, aparece siempre que las fracturas de la base, en relación con las demás localizaciones, se eleva al 60 por ciento. Como se vé, en nuestro cuadro esa proporción solo llega al 20 por ciento. El hecho es evidente y la mayoría de los autores lo consideran como tal, o sea que en los niños las fracturas de la base son mucho menos frecuentes que en el adulto. Los huesos, menos mineralizados, poseen mayor coeficiente de elasticidad; las suturas en esas épocas de la vida conservan su carácter membranoso; la columna vertebral menos ríjida, actúa de eficaz amortiguador. Tales las razones que se puede invocar como explicación a los hechos anotados. Debemos advertir que los casos que aparecen como "indeterminados," se refieren a pacientes que dentro de la apreciación clínica eran portadores de fractura del craneo, algunos de índole grave, pero sin que la radiografía y los demás medios de exploración permitieran señalar una topografía precisa.

La forma, distribución y extensión de las fracturas de la bóveda varía considerablemente. A veces son simples fisuras o hendiduras, el trayecto puede ser lineal o de aspecto ramoso; en ocasiones se reducen a disyunciones de las suturas, otras son esquirlosas o francamente conminutas. En algunos casos interesan la lámina externa, en otros la interna, en no pocos las dos. Recordemos que la interna o vitrea se fractura con más frecuencia que la externa, por razón de su más pequeño espesor y de su menor radio. Este hecho, como lo hemos de ver más adelante, reviste especial interés para los fines del tratamiento.

En la base la fractura comprende siempre todo el espesor del hueso. En opinión de algunos autores los trazos de fractura siguen una determinada sistematización, debido a la configuración propia de esta región del craneo. Desde luego, existen zonas de mayor resistencia y otras que la poseen menor. Las primeras son dos: una que parte de las apófisis orbitarias, si la línea de las alas menores del esfenoides, para terminar en la silla turca. La segunda, arranca de las apófisis mastoides y se dirije con el peñasco hacia adelante y adentro. Estas zonas de mayor resistencia limitan

tres fosas: una anterior limitada hacia atrás por el borde posterior del ala menor del esfenoides; la segunda entre esta linea y el peñasco; la tercera, detrás del peñasco.

Las tres fosas así delimitadas, anteriores, medias y posteriores serían, pues, las zonas débiles, dentro de las cuales deberían hallarse el mayor número de fracturas. Mas, como dice el Dr. José Arce, "la hipótesis es sencilla y atrayente, pero por desgracia del examen del material anatómico de que disponemos, resulta que tal teoría no se puede comprobar en la mayoría de los casos." Sin duda es así, pues si bien en algunos casos se encuentra trazos de fractura dentro de las mencionadas fosas, no son menos aquellos en que descubren en pleno peñasco o en el macizo que se halla delante de la fosa anterior.

Otros factores poseen indiscutible acción en la longitud y dirección de las fracturas del craneo. Quienes han ejecutado numerosas trepanaciones, saben bien que no hay dos craneos iguales en cuanto al espesor de las láminas óseas o a su condición de esponjosa o ebúrnea y, finalmente, a la distribución o predominio de uno de esos elementos." Por tanto, esas variantes en el espesor y la estructura revisten caracter individual y mal pueden establecerse sobre ellas leyes generales de distribución de las líneas de fractura, ni menos determinar puntos y zonas, débiles o fuertes, de tipos precisos y constantes. De otro lado, es muy distinta la elasticidad del craneo en los niños y los adultos, lo que explica las diferencias que existen en las fracturas de unos y otros y, también, porque son más frecuentes las de base en los últimos que en los primeros.

Además, debemos tener en cuenta otros muchos factores, como la posición del accidentado, la consistencia y forma del agente vulnerante, el grado de violencia con que actúa, su densidad y su tamaño.

No dejaremos de mencionar una forma de fractura muy especial, llamada simétrica, que los ingleses denominan "large ring fractures and small ring fractures," que son grandes ó pequeños anillos, concéntricos al foramen magnum, que por ser algunas veces esquirlosas pueden herir el bulbo, por medio de un fragmento, y ocasionar la muerte violenta. En fin, se observan los trazos llamados sagitales, que comprenden las dos terceras o las tres cuartas partes del craneo, extendiéndose desde la bóveda a la base.

La mayoría de los autores consideran que las fracturas más frecuentes son las irradiadas de la bóveda a la base, luego las de la bóveda exclusivamente, y las menos frecuentes las de la base sin lesión de la bóveda. En nuestra estadística aparece que las menos frecuentes las puras de la base, pero la cifra mayor corresponde a las simples de la bóveda, y el segundo lugar en frecuencia a las irradidas de la bóveda a la base. Por lo demás, insistimos en la creencia de que la menor frecuencia de las últimas en los niños, depende de la mayor elasticidad del craneo en ellos, merced a las circunstancias anatómicas ya indicadas.

Las lesiones de las meninges varían al infinito, desde simples punturas, apenas perceptibles, hasta amplias y extensas desgarraduras, que suelen presentar formas muy diversas. Algunas veces los desgarros alcanzan los senos, y a través de ellos se realiza el paso de la sangre a la cavidad encefálica, y en veces permite, también, la salida de materia cerebral, es decir, la extracción cefálica. Las lesiones encefálicas, que ocurren en las fracturas del craneo son, por cierto, las de mayor significación, y todos los quadros sintomatológicos y clínicos, solo son reflejo de la intensidad, de la localización y extensión de esas lesiones.

Otras manifestaciones anatomo-patológicas que es indispensable mencionar

son: el edema de la sustancia blanca o gris, más o menos extenso, las *hemorragias* de tipo uniforme, los grandes derrames sanguíneos, la comprensión o atrición, y las dilacerantes o destructivas.

Macroscópicamente el edema reviste el aspecto de una tumefacción cristalina que, a la incisión, resume abundante líquido céfalo raquídeo. Microscópicamente se observan ensachamientos de los espacios de Wirchow-Robin, así como de los intercelulares e interfibrilares, llegando hasta el aumento de las células ganglionares y neurológicas. Naturalmente la gravedad del edema cerebral depende de la extensión que abarca y, sobre todo, de su predominio en la sustancia gris de la corteza cerebral. En algunas ocasiones se localiza en los espacios aracnoideos y según su volumen puede determinar fenómenos de atrición de la masa cerebral.

Por muy diversas razones, la hemorragia es la lesión más grave y que dá lugar a mayores complicaciones. En las meninges como en el encéfalo, se presentan hemorragias que pueden ser simples extravasaciones puntiformes, algunas veces aisladas, otras confluentes formando focos hemorragicos, o llegar a constituir derrames de grandes proporciones, de origen venoso o arterial. Un gran derrame sanguíneo que se interpone entre el casquete óseo y la masa encefálica, puede presionar a esta contra el foramen magnum y producir la muerte. Ocurren, igualmente, las hemorragias entre la dura madre y la aracnoides, o sea las llamadas intradurales; entre la aracnoides y la pía madre; finalmente, entre ésta y la sustancia cerebral. Las extradurales son producidas por la fractura del díploe o de los senos venosos, pero en especial por la efracción de la arteria meningea media o de sus ramas. Las subdurales proceden de vasos de la corteza y, principalamente, de los vasos piales. La sangre derramada en el especia arocnoideo es la que tiñe el líquido céfalo-raquídeo, en diferentes grados.

CONSIDERACIONES ETIO-PATOGÉNICAS

Asunto sumamente debatido y que ha dado lugar a la enunciación de numerosas teorías, más o menos fundadas, pero sin llegar a comprobaciones satisfactorias y conluyentes, es el relativo al mecanismo de las fracturas. El Dr. José Arce, en compañía del Dr. Manuel Balano, presentó al Séptimo Congreso Argentino de Cirugía, un trabajo muy valioso, bien documentado, conteniendo valiosas y originales consideraciones de órden clínico y experimental, sobre los traumatismos de que nos ocupamos, y allí con extremada razón expresa: "que la experiencia solo ha servido para demostrar la banca-rota de todas esas teorías."

Un hecho elemental, por cierto, es que las fracturas se realizan unas por acción directa y otras, por acción indirecta. Respecto de las primeras, "se debe aceptar que la acción mecánica del trasumatismo pone en juego la elasticidad de la zona ósea contundida, agotada la cual se interrumpe la continuidad del hueso produciéndose la diéresis, o el hundimiento de una parte de la lámina, que puede ser la externa, la interne o ambas, a la vez. También se puede admitir que las fracturas conminutas se producen porque el cuerpo contundente no actúa sobre un punto, sino sobre una zona; pero, continúa siendo inexplicable, porque una fractura de la bóveda irradia hacia la base, siguiendo tal o cual dirección, y otra queda limitada a determinados espacios de una u otra región.

Menos comprensible es todavía el mecanismo de las fracturas indirectas, entre las cuales la más frecuente es el estallido de las bóvedas orbitarias, a consecuencia de un golpe recibido en la región posterior de la cabeza.

ESTUDIO CLÍNICO Y SINTOMATOLÓGICO

Es interesante notar la gran varie-

dad de signos y síntomas que se observan y las diversas formas en que se agrupan, y de otro lado, la extraña discrepancia que existe entre los autores sobre su valor y significación. Sujetándose a su valor diagnóstico, los síntomas pueden clasificarse en síntomas de evidencia o patognomónicos, síntomas de probabilidad y síntomas de presunción. Cuéntanse entre los primeros la radiografía positiva, la visión directa de la fractura en caso de que esté complicada con herida, o que se haya comprobado en una intervención, y la pérdida de líquido céfalo-raquídeo o de sustancia cerebral. Entre los segundos la existencia de líquido céfalo-raquídeo hemorrágico; las epixtasis, otorragias y hemorragias faringeas. Los signos de presunción son la conmoción cerebral, las paralisis, convulsiones, reflejos anormales, delirio, incontinencias esfinterianas, vómitos, trastornos oculares, glicosuria, heridas de la cabeza, hematomas, crepitación.

Existe el mayor desacuerdo y a veces definida oposicón, sobre el valor de la radiografía en el diagnóstico de las fracturas del craneo. No son pocos los autores que le conceden escasísima importancia y otros que hasta la condenan, juzgándola sin valor y a un inconveniente por las incomodidades que implica su aplicación y por su costo elevado. No participamos de esas opiniones. Desde luego el mayor número de veces, casi en la totalidad, son precisas y reveladoras en las fracturas de la bóveda, las más frecuentes en los niños, y por tanto necesariamente tenemos que aceptar que en estas ocasiones constituye un medio de diagnóstico certero e inobjetable. De otro lado, el empleo de la radiografía ha proyectado evidente luz en la anatomía patológica de estos traumatismos, revelando la existencia de fracturas en numerosos casos en los que la clínica era impotente para formular un diagnóstico. Ha puesto en evidencia, igualmente, cómo era equivocada la primitiva opinión de que todas las fracturas de la base, era propagaciones de las fracturas de la bóveda. Además, aclara o facilita la interpretación de los hundimientos óseos. Finalmente, por medio de la iodoventriculografía permite, con certeza, localizar los hematomas subdurales y los de la cisterna magna, así como los abcesos cerebrales. En fin, en determinadas oportunidades, es un documento médico-legal muy valioso en los juicios provocados por accidentes. Por lo demás, nunca hemos lamentado agravaciones ni accidentes debidos a su aplicación.

La salida del líquido céfalo-raquídeo o de materia cerebral, a través de una herida o de los orificios naturales, es una prueba directa e irrefutable que, por lo mismo, no se presta a comentario alguno. La comprobación de líquido céfalo-raquídeo hemático no es síntoma patognomónico de fractura del craneo. Sin embargo, la gran frecuencia con que se asocian ambos hechos, significa que es un signo de gran probabilidad. Muchos observadores declaran la inutilidad de la punción lumbar, alegando, no sin fundamento, que la presencia de un líquido claro no excluye la posibilidad de la fractura; que su condición hemática, ni afirma la existencia de fractura ni mucho menos permite localizer la lesión; que su tensión alta o baja no corresponde a la hiper- o hipotensión intracranealla cual obedece a otras causas; y, finalmente. que su empleo no posee importancia terapéutica.

Sin embargo, dado que no siempre existen los signos de evidencia, y la frecuencia con que se observan casos oscuros e imprecisos, nos ha llevado a practicar la punción lumbar sistemáticamente, confiados en su inocuidad y porque en muchas ocasiones presta positivo auxilio a la elaboración del diagnóstico. Las otorragias algunas veces se deben a ruptura del tímpano, pero con mayor fre-

cuencia son ocasionadas por la fractura del peñasco. Expistasis y faringorragias suelen ocurrir en lesiones de las fosas nasales y de la bóveda palatina, pero no son pocas las veces en que la causa es una fractura de la fosa anterior. Aisladas no poseen significación diagnóstica, pero si con otros fenómenos concomitantes que completan el cuadro.

El signo más constante en diversos grados de intensidad y duración, es la conmoción cerebral. Desde un punto de vista general, los traumatismos del craneo, como los que ocurren en las demás regiones del organismo, dan lugar á trastornos vasculares, diéresis, hemorragias y lesiones destructivas. Pero el hecho primordial de las nobles funciones que corresponden al contenido encefálico, y el hecho de que éste se halla encerrado dentro de una caja de pequeña o nula extensibilidad, provoca fenómenos peculiares, fisiopatológicos, que según una escala, generalmente aceptada, se denominan conmoción, contusión y compresión, manifestaciones alrededor de las cuales se producen los diferentes cuadros clínicos que corresponden a los accidentes que estudiamos.

La conmoción consiste, fundamentalmente, en la pérdida de la conciencia, durante breves instantes o algunos minutos, pero que una vez recobrada la lucidez, el paciente se encuentra en condiciones, aparentemente, perfectas. Esta última circunstancia ha originada la creencia muy difundida, de que la conmoción se debe, únicamente, a trastornos de órden funcional, sin lesión macroscópica ni microscópica de los centros nerviosos. Se dice que el golpe produce una acción inhibitoria de la célula nerviosa, sin lesión somática alguna y, por tanto, sin dejar huella o secuela alguna. En cambio muchísimos observadores e investigadores, sostienen el principio de que no puede producirse la conmoción, en cualquiera de sus grados, sin que haya lesiones materiales de mayor o menor entidad. Esta es la interpretación que tiende a imponerse en los últimos tiempos, y se acepta que cuando la reparación funcional es completa, real o aparentemente, se debe a que las lesiones encefálicas se han producido sobre zonas mudas. De otra manera siempre se observan manifestaciones sensoriales, sensitivas, motoras o síquicas.

Contusión cerebral se denomina a las diversas lesiones tales como equímosis, hematomas, hemorragias abiertas, erociones de mayor o menor extensión.

Si estas lesiones se lozaliza sobre zonas mudas, no se traducen por síntomas periféricos, pero si ocurren sobre zonas de funciones sistematizadas, dan lugar a fenómenos focales, simplemente irritativos, que se traducen por exitaciones, convulsiones, inhibitorias; o destructivas provocando paralisis, completas o incompletas. La compresión puede ser más o menos localizada, a veces general. Y se denomina hipertensión intracraneana o compresión intracraneana, a la resultante del aumento total del necéfalo, dentro de la caja ósea inextensible.

¿Cuales son las causas de este aumento de volumen total? En primer término, el aumento de la cantidad de sangre y de líquido céfalo-raquídeo. Enseguida al edema, que se produce a consecuencia de los traumatismos en todos los tejidos del organismo. La cantidad de sangre acrece porque el inmediato efecto del golpe es un espasmo vascular constrictivo, al cual sigue una vaso-dilatación más o menos duradera. En fin, se considera que el líquido céfalo-raquídeo aumenta a consecuencia de una hiperfunción secretora, en derminados plexos venosos, de donde pasa a los ventrículos laterales, enseguida al cuarto ventrículo y a los espasios aracnoideos.

Entre los síntomas tardios, de mayor importancia, mencionaremos la anosmia total o unilateral y los trastornos de la

visión, apreciables por el examen del fondo del ojo, los cuales tienen una significación diagnóstica de la más grande importancia. Menos significación presentan los trastornos correspondientes a otros nervios craneales, trastornos de la sensibilidad general, de la motricidad, de órden mental y de índole simpática.

CONSIDERACIONES TERAPÉUTICAS

El verdadero motivo inspirador de este pequeño trabajo, es la confusión que existe, al presente, por lo menos entre nosotros, sobre la conducta que debe seguirse frente a los casos de fracturas del craneo en los niños. Las tendencias más opuestas y radicales se presentan a nuestra consideración, desde los resueltos intervencionistas que aconsejan los métodos operatorios inmediatos, hasta los más recalcitrantes conservadores que solo admiten la intervención quirúrgica en casos excepcionales y raros, en los que además el resultado del tratamiento no es satisfactorio. No es posible trazar una línea de conducta única, invariable, absoluta, pero juzgado el problema globalmente, comprendiendo un gran número de casos, somos partidarios de la última tendencia, y por ello relatando más dos cientos casos con una mortalidad mínima, salimos al paso de los operadores sistemáticos, cuya cifra de decesos es hasta quince veces mayor que la nuestra.

Esquemáticamente revisaremos la línea de conducta que hemos seguido en el tratamiento de estas lesiones. En toda herida contusa del craneo, debe buscarse la existencia de una fisura o hendidura, y en caso afirmativo, si el paciente ofrece alguna manifestación de compresión, recordar que la lámina interna puede, también, hallarse fracturada. En tal caso debe recurrirse a la trepanación o, simplemente, levantar con el cincel la lámina externa y el diploe en busca de la lesión interna. Y en presencia de síntomas focales, a pesar de hallarse intacta la lámina externa, pensar en la frecuencia con que se rompe la vítrea, únicamente.

En ningun caso debemos limitarnos a ver una parte de la fractura, la que se encuentra comprendida entre los bordes de la herida, sino que se la debe ampliar y seguir el curso de la línea de fractura, porque muchas veces algo más lejos cambia de caracter y suele presentar esquirlas o depresiones, lejos de la diéresis de las partes blandas. Bien entendido que la extirpación de las fragmentos superficiales y sobre todo la esquirlectomía profunda o la extracción de toda la parte hundida, requiere práctica especial y la más rigurosa técnica quirúrgica. Aquí debemos llamar la atención sobre una práctica inconveniente y casi universalmente aconsejada, y es la irrigación de las fosas nasales o de los conductos auditivos, en los casos de epixtasis u otorragias, con el supuesto propósito de desinfectar dichas cavidades e impedir las contaminaciones profundas. Esta costumbre favorece, en vez de evitar, las infecciones de la cavidad craneal. La sangre extravasada sirve, admirablemente, de tapón protector, y los lavados que remueven esa sangre, se convierten en los vectores de los numerosos gérmenes que llenan dichas cavidades. El deber es, pues, respetar esa barrera natural, limitandose a colocar en los orificios de salida una simple torunda de algodón.

Para orientar el tratamiento, por lo menos en sus lineamientos generales, podemos establecer una división de los casos en benignos y graves. En los primeros, que no presentan signos severos de compresión, local o general, sin manifestaciones septicas, no es discutible siquiera el tratamiento médico y de espectación, sobre la base del reposo absoluto, procurado por el empleo de sedantes y el asilamiento del enfermo para sustraerlos a los estímulos exteriores. Alimentación moderada y pequeña ingestión de

líquidos. Catarsis discreta y suero hipertónico.

En los casos graves los síntomas que mejor pueden guiar al práctico, en la apreciación de las posibles lesiones, su extensión e intensidad, son los que expresan el grado de compresión, local o general y la hipertensión intracraneal. En el grupo de los casos benignos, cuando existe un buen estado general y los síntomas focales, de excitación o de parálisis, son moderados y poco profundos, es impositivo limitarse al tratamiento médico exclusivo. Si los síntomas en vez de amenguar o disiparse se acentúan y el estado general se torna alarmante, lo más importante es determinar si se trata de una hemorragia extradural o subdural, porque en tales circunstancias la intervención es el tratamiento salvador.

El mayor de los peligros es, sin duda, la hipertensión intracraneana. Y como ella se debe, aparte el edema al aumento del volumen de sangre y de líquido céfalo-raquídeo, así como de la presión arterial, era lógico el tratamiento que desde épocas pasadas se prescribía en estos casos, o sea la quietud, la catarsis, la diuresis y estricta dieta alimenticia con empleo muy escaso de líquidos.

Aún cuando hemos concedido un papel importante a la punción lumbar, como auxiliar diagnóstico, no la consideramos un agente terapeutico de valía. En efecto, es sabido que la presión del líquido céfalo-raquídeo, es independiente en su causa y mecanismo del hipertensión total intracraneana, y por tanto, la extracción del mencionado líquido no disminuye la hipertensión total. La clínica, por lo demás, demuestra este acerto.

Si a pesar de las medidas indicadas y de una prudente espera, que debe prolongarse hasta donde sea posible, en un caso de fractura del craneo cerrada, el estado general se vuelve alarmante, el paciente ofrece tendencia al como o no sale de él, y presenta pupilas dilatadas, con pulso bradicárdico exajerado o al contrario muy frecuente, debemos pensar que estos fenómenos de hipertensión cerebral se deben a un gran hematoma, o al bloqueo en determinado lugar del sistema ventricular dentro del cual circula el líquido céfalo-raquídeo. En veces, la localización de las lesiones puede ser determinada por la iodo-ventriculografía. Este es un caso en que puede justificarse la intervención, y en tal emergencia, la operación elegible es la trepanación sub-temporal de Cushing.

He aquí ahora los resultados obtenidos en el tratamiento de los 208 casos de fracturas de craneo en niños, que han sido materia de estas lijeras consideraciones.

Tratamiento médico	173
Esquirlectomía y plastías.....	11
Desinfección quirúrgica, sutura de partes blandas con ó sin drenaja	19
Trepanación	5
Total	208
Curados	203
Fallecidos	5
Total	208

Dos de los cinco fallecidos sufrieron la trepanación sub-temporal. Uno falleció a las 6 horas de ingresar al hospital, en estado agónico. Otro sucumbió con signos meningo-encefálicos a los siete días de ingresar. El último fué víctima de un abceso cerebral y pereció a los 60 dias.

SUMARIO

La fractura del craneo en los niños es un accidente relativamente benigno y que produce, bajo el tratamiento médico, escasa mortalidad. El tratamiento difiere según se trate de fracturas abiertas o expuestas, o de facturas cerradas. En las primeras, que representan una pequeña minoría, el tratamiento debe seguir las reglas de la traumatología

general. En las segundas, salvo el caso de hundimientos óseos, o de irreductible hipertensión craneana, el tratamiento debe ser exclusivamente médico. En los casos excepcionales de intervención quirúrgica, la operación de elección es la trepanación uni- ó bilateral de Cushing.

RÉSUMÉ

La fracture du crâne chez l'enfant est un accident relativament bénin et avec un traitement approprié á une mortalité très basse. Le traitement varie selon la nature de la fracture—fracture ouverte ou fracture fermée. Les fractures ouvertes ne sont pas fréquentes et exigent un traitement conforme aux règles de la chirurgie générale. Dans les fractures fermées le traitement est exclusivement médical excepté dans les cas de fractures déprimées ou dans celles qui sont accompagnées d'hypertension persistante d'origine intracrâniale. Dans les cas exceptionnels qui necessitent une intervention chirurgicale l'opération de choix est le trépanage décompressif, unilateral ou bilatéral.

Выводы

Переломы в детском возрасте сравнительно безопасны и сопровождаются незначительной смертностью при консервативном лечении. При открытых переломах нужно придерживатся общих хирургических правил. Закрытые переломы лечатсч только консервативно, за исключением случаев депрессии осколков или настойчивой гипертензии внутри-черепного происхождения. В исключительных случаях требующих хирургическое вмешательство, операция выбора односторонная или двухсторонная трепанация.

The Use of Living Fascia in the Repair of Hernias

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SINCE 1913 I have performed 1424 operations for all types of hernia, an average of 49 operations a year. The hernias included inguinal, direct and indirect, femoral, epigastric, incisional, umbilical and diaphragmatic. The types of operation were the Bassini, Gallie, Ferguson, McArthur, Halsted and a modified Bassini-Gallie operation. The latter is a term that designates a technic to be described later. Materials commonly used for these operations are catgut, ribbon gut, silk, wire, cotton, nylon, homologous and heterologous fascia. Wire, cotton and nylon have been the only sutures omitted by me in these operations.

Now and again I have used silk, but because of numerous infections resulting from the presence of a foreign body, I have abandoned it. Fistulas following the use of silk present a difficult situation, since the sinuses will remain open until the last strand of silk has been ejected or removed by the surgeon. Hence I have given up the use of any foreign material as a suture or ligature for any type of operation employed for the repair of a hernia. Cambassis[1] and others also find that silk and linen have

a tendency to cause suppuration.

FASCIA

This paper will deal particularly with the use of fascia in hernia operations. Prompted by the desire to obtain better results and thereby lessen recurrences, I began to employ fascia rather intensively for the repair of hernias about ten years ago. Its principles had been propounded by Gallie.[2] In an excellent paper Williamson[3] dilated on its virtues. It seemed logical then, as it does now, that an homologous fascia would facilitate healing of the joined structures. The fascia is either obtained from fascia lata, or, following the technic of McArthur, in continuity from the fascia of the external oblique. Heterologous fascia may be substituted for fascia lata. However, infection results more frequently with the use of ox fascia. When not enough fascia lata is obtainable one may also combine heterologous and homologous fascia. Ribbon gut too has been utilized as an auxiliary suture with these two materials in a few of our cases.

Fascia is practicable in patients of all ages from puberty up to the age of 74. Its use is unnecessary in children, who heal effectively by first intention. While the same claim has been made for *some* women patients, we have found it, nevertheless, in *all* types of hernias which occur in women. However, the fascia method is never used for the repair of strangulated hernias. When a hernia is strangulated, there may be infection present, depending on the duration of the condition. Many of these patients are too sick to add a technic which would prolong the time of operation. It is obviously contraindicated when the viability of the bowel is in question.

REVIEW OF THE LITERATURE

Gallie[2] believed that failures with fascia are due to technical errors such as suppuration and insecure anchorage at the beginning and end of the stitch, resulting in infection with attendant disintegration of fascia. The same may be said, however, in the use of all types of sutures mentioned.

McLaughlin[4] reported 90 cases operated on by the McArthur technic. He also used this method in recurrences. There were no recurrences in this series, but too short a time had elapsed since operation to permit final conclusions.

W. L. Estes, Jr.,[5] employed the rectus sheath, uniting it to the fascia opposite, with transplantation of the cord. Recurrences were reduced in indirect and direct hernias. (0.4 and 2.77 per cent respectively). Foss and Guthrie, however, believed that cotton could be safely employed wherever fascia was used. Koontz too abandoned the use of fascia because it does not add any particular strength to the Bassini operation. Robius reported no recurrences in his use of fascia. Halsted, Bloodgood and Downes discarded the use of the rectus sheath. Gosset sewed two strips of fascia together using two needles threaded at the ends. On the other hand, Burdick[6] claimed that recurrences are more frequent with the use of fascia but advocated its use in large abdominal hernias only. He spoke favorably of Wangensteen's pedicled flap method, preferring silk because he found that the incidence of infection was lower than that of catgut. At reoperation Burdick[7] stated that little evidence of fascia was noted in cases where it had been used as a suture. Swinton and Schwalm[8] of the Lahey Clinic advocated the use of the fascial repair of hernias in all recurrent and direct hernias. They claimed that recurrences in the latter could be greatly reduced. Smith and Masson[9] felt that all recurrent ventral hernias could be cured with fascia. They

reported twelve ventral hernias operated on previously from one to five times.

Fleming[10] laid particular stress on the efficacy of the transversalis fascia. Culligan[11] stressed the value of the McArthur method of repair. In the great majority of cases of indirect hernia he stated that one strip is often sufficient. The rest of the repair can be completed with catgut. He felt that infection is more common using the Gallie method than the McArthur technic. In 69 replies out of 106 cases (McArthur) there was a recurrence of 8.6 per cent whereas 88 replies to catgut technic gave 29.6 per cent recurrences. Culligan also combined the McArthur method with the "white fascia" derived from the anterio-posterior aspect of the transverse abdominal muscles.

Iason[12] described a technic especially useful in sliding hernias. A wide strip of the fascia lata is brought up subcutaneously and insinuated through two longitudinal slits of the inguinal ligament to which it is attached by a No. 1 chromic catgut suture. The repair is then continued with fascia after it is anchored with catgut.

Joyce[13] used a combination and modification of the Halsted method of transplantation of the cord, the Andrews imbrication method and a combination of McArthur's and Gallie's technic. When there was not sufficient fascia obtained by McArthur's method, he did not hesitate to use fascia lata. His results have been excellent with few recurrences and infections.

Robins[14] advocated the use of the McArthur technic. He felt that the cause of recurrence was a muscular deficiency. Babcock was credited with calling attention to the thick ligamental covering of the pubic bone to which the first stitch is attached.

McCloskey and Lehman[15] repaired large inguinal hernias by the McArthur technic. They used one strip, first passed through the conjoined tendon and then through the reflected portion of Poupart's ligament. The suture then passed back and forth through the internal oblique and transversalis fascia to the shelving edge of Poupart's ligament. Each loop of fascia was fixed with a linen or silk suture, and the external oblique aponeurosis sutured under the cord.

Williamson[3] believed the Gallie operation gave appreciably better results than any other, especially in adults. Recurrences were placed at 1.3 per cent for indirect and 8.3 per cent for direct hernias. He too stressed the inadequacy of the existing follow-up of cases. R. Pilcher[16] used the plantaris tendon as a graft, and has fully described the technic. Hawes[17] believed that ribbon gut is as efficacious as any other method of repair. Several years ago I used ribbon gut exclusively. It is an excellent suture material.

Gould[18] advocated an open operation, requiring an intricate technic, to obtain a strip of fascia 9 inches long and 1 inch wide. He called his method "patching the darned hole," and claimed less recurrences with this technic than with Gallie's. W. Gray placed the fascial stitch behind the cord cautioning that no gap should be left between the edge of the rectus sheath and the pubic crest. Jolly believed fascia sutures to be important in obese subjects, as well as cases of direct hernia and recurrent hernias. Austin[19] stated that autogenous fascial sutures are superior to any foreign material suture. He recommended very highly the autologous sutures in the repair of femoral hernias. He did not believe the method pre-disposes to infection.

TYPES OF HERNIA

Many feel that the use of fascia is

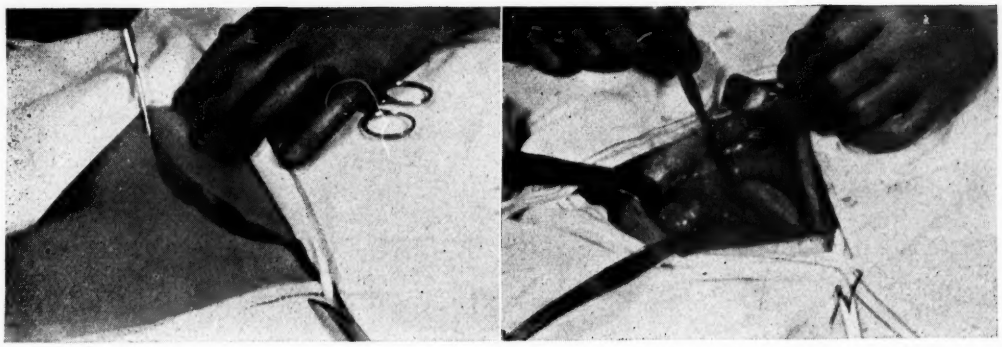

Fig. 1. A. The incision for femoral hernia is made with the convexity caudad. B. The sac of the femoral hernia below Poupart's ligament.

unnecessary in the repair of an indirect inguinal hernia. This may be true in the small hernia, but when one encounters the enormous scrotal hernia in men, or the equally large vulvar hernia in women, there is really need for a stronger and more lasting material than catgut. In this opinion Foster concurs.

Curiously enough recurrences are frequent in femoral hernia, especially when the closure of the canal is obtained solely with an operation below Poupart's ligament. When the canal is closed above and below Poupart's ligament by means of fascia, less danger from recurrence is encountered. If a curved linear incision is made with the convexity downwards, the skin is dissected up so that the femoral protrusion and the inguinal region are exposed. (Fig. 1A) The sac is dissected from below upwards, the fascia of the external oblique muscles is incised where the upper portion of the sac is isolated. (Figs. 1B and 2A) After removal of the sac, the fascia is then placed at the entrance and exit of the femoral canal. (Figs. 2B and 3A)

Epigastric, incisional and umbilical hernias can be considered in the same category because the principle of closure is the same. Here fascia serves a useful purpose especially in incisional hernias which follow in almost every instance as a result of infection. Since there is more or less loss of abdominal

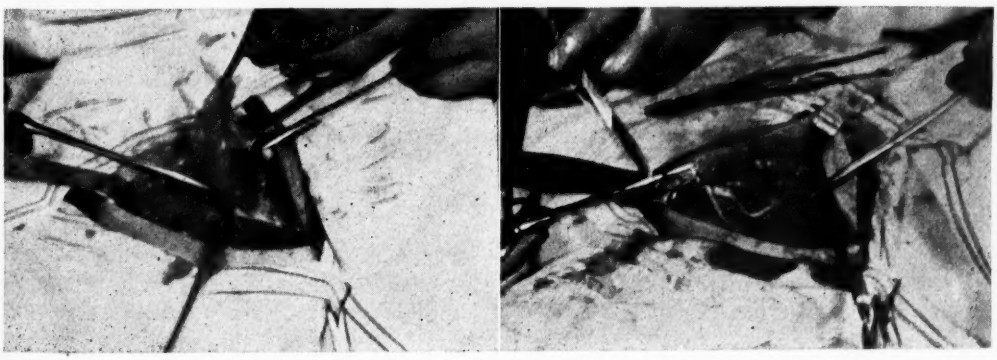

Fig. 2. A. The complete sac of the femoral hernia is isolated above Poupart's ligament. Fig. B. The first fascial stitch is inserted at the outlet of the femoral canal.

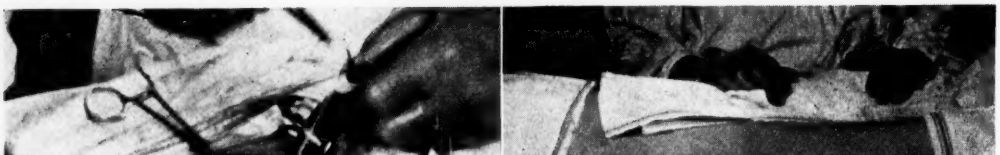

Fig. 3. A. The second fascial stitch is placed at the entrance of the femoral canal above Poupart's ligament. B. Illustrating Masson stripper and thigh from which strip is taken.

fascia, depending on the severity of the infection, the use of fascia as a suture material is of great value. In one recent case of incisional hernia I used eight strips of fascia. It was probably the largest number in my experience, the incision extending from the epigastric to the suprapubic regions. The patient made a good recovery. The use of a sheet of fascia has not been as successful in my hands as strips obtained from the fascia lata.

the hernia is prepared from the crest of the ileum to below the knee. (Fig. 3B) A two-inch incision vertical to the long axis of the thigh is made on the lateral side of the thigh over the insertion of the fascia lata. (Fig. 4A) A half-inch incision is made across the fascial fibers, and a strip is "started" by making two incisions at right angles to this cut in the direction of the fibers. Subcutaneous fat is cleaned off the fascia, which is picked up in a thumb

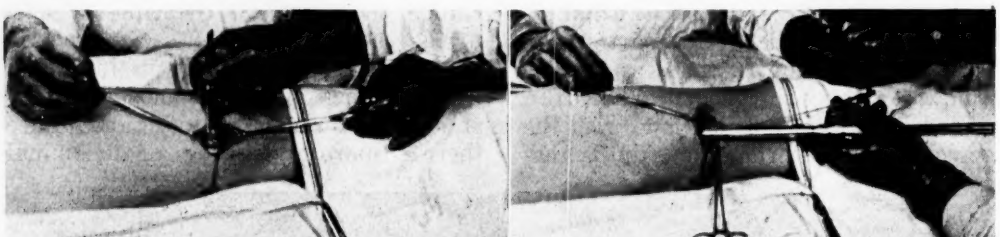

Fig. 4. A. Incision is made just above knee joint. Strip of fascia is dissected out on the handle of the knife. B. After the strip of fascia is cut with the Masson stripper, a piece 7 to 8 inches long emerges.

TECHNIC

It seems then that an homologous fascia would facilitate healing of the joined structures.

Coincident with the operation for the repair of the hernia, the leg opposite

forceps and freed from the underlying tissues by blunt dissection with the knife handle. The mobilized end is grasped in a Kelly hemostat and the strip cut using the Masson fascia stripper. (Fig. 4B) This stripper is preferred because

only a single incision is required to obtain the strip. The fascia is then cut into sutures of the desired widths. Enough material for from two to four sutures can be easily obtained. They are kept in a solution of normal saline until ready for use. The number of strips to be used depends on the size of the hernia. The long incision on the outer side of the thigh to obtain fascia lata mentioned by Cambassis has been discarded. The large Gallie needle has been relegated to the past because it was responsible for some recurrences. These needles are too broad and their edges are sharp leaving large suture holes. The needle used by Stuart Harrington[20] is the best type for fascial sutures. It is small, with rounded surfaces which do not cut tissues.

The structures through which the needles must pass in the repair of the hernia have been debated by many authorities. It has been stated that a muscle to fascia stitch is illogical. Advocates of the repair operation which includes the transversalis fascia have probably no dissenters to this part of the technic. Most surgeons are agreed that fascia must be joined to fascia to obtain permanent results. Granted this be true, then the employment of sutures of fascia lata joining the reduplicated edge of the external oblique to the shelving margin of Poupart's ligament would help to prevent recurrences.

THE MODIFIED BASSINI-GALLIE OPERATION

The fascial stitch used in the modified Gallie-Bassini operation[21] is a continuous one. The number of layers of stitches used depends upon the size of the hernia. In an ordinary inguinal hernia usually two layers of sutures are employed. It is important to insert the needle so that the first stitch includes the fascia and periosteum covering the pubic bone. This suture is continued in the direction of the anterior superior spine. When it reaches the point where the cord dips down to enter the abdomen, the suture is used in a circumferential manner without choking the cord. The second suture joins the free borders of the fascia of the external oblique. The free end of the suture is anchored *in situ* with a single 0 chromic catgut stitch. Except in the Ferguson technic the cord is placed under the superficial fascia. It is obvious that with the fascia under the cord, a stronger and more permanent repair will result. A suture of 00 plain catgut is then placed in Scarpa's fascia (Fig. 5A), joining the

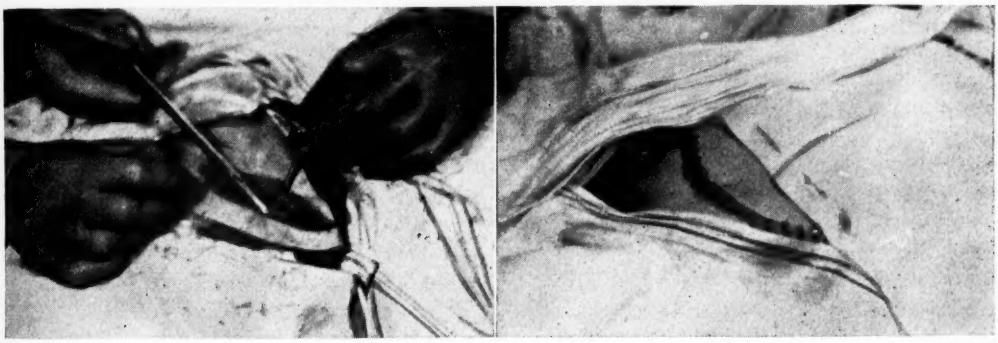

Fig. 5. A. Fine 00 catgut suture uniting Scarpa's fascia. This stitch prevents secondary collections. B. Clips to the skin.

edges of the deep layer of the superficial fascia. This eliminates the dead space below the skin. Clips are applied to the skin (Fig. 5B).

COMPLICATIONS

It is a well-known fact that hernias are more easily infected than any other type of abdominal operation. Probably one of the greatest preventive measures of infection in hernias is the elimination of dead spaces and perfect hemostasis. Should infection occur after the use of fascia, the wound heals much more slowly than those in which catgut sutures have been employed, but the danger of recurrence is not nearly so great as with the use of other suture material. It must be borne in mind that to prevent recurrences the fascial stitch must be properly anchored at the beginning and end of the suture (Gallie). Again dead spaces allow the accumulation of serum and blood which predispose to infection. To prevent this, it is necessary to have tissues intimately apposed. A most important stitch is one of fine 00 catgut uniting the deep layer of the superficial fascia (Scarpa's fascia). Recurrences are often due to the failure of the surgeon to remove the hernial sac. Twisting and transfixion of the sac high up under the muscles is an important aid in preventing recurrence.

To prevent atrophy of the testicle, the sutures should not constrict the cord. In addition the nerve supply and the vas deferens must not be destroyed, an accident many surgeons have encountered as an unfortunate complication. However, if the vas deferens has been cut across, an immediate end to end anastomosis should be performed. A swedged on suture of silk on a straight or curved needle employed in the suture of blood vessels is used for the anastomosis. The sutures are placed in a circular manner without entering the lumen of the vas deferens. Some surgeons refuse to do a simultaneous bilateral repair because cases of bilateral atrophy of the testical have been reported. I have never refused to do a simultaneous bilateral repair of a hernia. I have one case, however, in whom atrophy of the testicle occurred on one side. Collectively I have records of at least four cases of atrophy of the testicle in the total number of operations performed for hernia.

STATISTICS AND FOLLOW-UP

Every patient operated on in our service is asked to return within a year after operation. It is a most difficult problem to follow ward cases. In the past two years we have endeavored, with only scant success, to interview every case in which fascia was used. Out of 275 return postal cards sent with questionnaire attached, 100 were returned. Of these, six had recurrences, one was a direct inguinal hernia, four were indirect inguinal hernias and one was a femoral hernia. Recurrences occurred only in those who were infected. Curiously enough, in bilateral hernias there is considerable danger of one side becoming infected. On account of the greater liability for hernias to become infected after operation I now use from 2 to 4 gm. of sulfanilamide in the wound. It is still too soon to report the results. A huge scrotal hernia in a patient 65 years of age became infected. The primary condition promptly returned. This patient was operated on for a recurrence. Femoral hernias are now operated on above and below the inguinal ligament. In other words, fascia is placed at the entrance and exit of the femoral canal. We have had no recurrences since using this technic. Following two or more operations there may be present a weakness of the inguinal in-

cision without the formation of a sac. We have observed this in two patients.

CONCLUSIONS

1. The desire to prevent recurrences after the operation for hernia has led to the employment of many methods since Bassini first propounded his technic.

2. A review of the literature has been appended.

3. All kinds of suture materials have been advocated with proponents for each type.

4. Fascia lata has given fewer recurrences than catgut. It is believed that foreign body sutures are more apt to become infected than homologous sutures.

5. Complications of the operation have been considered.

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RÉSUMÉ

Les avantages des différents matériels du suture employés dans les opérations pour hernies sont indiqués.

Une revue de la littérature de l'emploi de fascia vivant dans les opérations pour hernies nous est donnée par l'auteur. Une technique est décrite. L'auteur donne sa préférence à une modification de l'opération de Bassini-Gallie. D'après lui, l'emploi du fascia lata est suivi de moins de récidives que l'emploi du catgut. Il exprime aussi l'opinion que l'emploi de sutures de provenance étrangère est plus apte d'être suivi d'infection que l'emploi de sutures homologues.

Les complications opératoires sont discutées.

SUMARIO

El autor llama la atención a las ventajas de todas las variedades de suturas empleadas en la reparación de hernias.

Hace una revista de la literatura con respecto al uso de fascia-viva para la sutura de hernias, detallando la técnica. El autor prefiere la modificación Bassini-Gallie y en conclusión mantiene que la fascia-lata da mejores resultados que el catgut, y que las suturas de origen extraño son más susceptibles a la infección que las suturas homogeneas.

Las complicaciones de la operación son enumeradas.

Выводы

Автор указывает на преимущество всевозможных шовных материалов при операциях грыжи. Он просматривает литературные данные по вопросу употребления живущей фасции и описывает технику ее употребления. Автор предпочитает модификацию операции Бассини-Галлие Разбираются также послеоперационныя осложенения. Воспользование фасцией для шва дает меньше инфекций, чем шов инностранным материалом, как катгут.

Fractional Dosage in Spinal Anesthesia

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THE attention of surgeons and anesthetists has always been called to a group of patients who present a peculiar resistance to spinal anesthesia, be it of the spinal, inhalation, rectal or intravenous type. Intra- or extradural analgesia was found inadequate in certain cases, and in others it had no effect at all. If rectal anesthesia was used, the basal anesthetic was insufficient. In inhalation anesthesia, in some cases of abdominal surgery, besides the large quantities of anesthesia used, muscular contractures were often difficult to overcome. The same was true when other methods were used.

In an attempt to ascertain why some patients respond readily to the anesthetic, while other patients under the same conditions and with the same technic offered marked resistance, we directed our efforts to finding the underlying cause and solution of the problem.

As the result of observation and study of a great number of patients I reached the conclusion that these anesthesia-resistant patients belonged to the group of sympathycotonics. This group presented a special resistance to spinal anesthesia, the failure of the anesthetic varying from 5 to 7 per cent. I am referring to the results obtained by competent surgeons, eliminating cases of faulty technic or the use of ineffective anesthetic salts.

Nearly three years ago Dr. Pasman, unacquainted with Sebrechts,[1] work, devised a procedure that motivated this study. This procedure, while designed for the anesthesia-resistant patients, may be used in other cases. The technic follows: The patient, to whom the position is previously explained, lies in lateral decubitus, a picture of the correct position being shown him, if necessary. Well trained assistants support the patient, his head being slightly raised and placed on a pillow, the table being horizontal. The operation is delayed until a convenient position is ascertained in order to facilitate the spinal puncture.

We use Querella percaine dissolved in from 6 to 8 cc. of spinal fluid. The solution injected is practically isobaric. Diffusion will not be effected by gravity, but in relation to the force of the injection and the spinal fluid pressure. Thus it makes no difference on which side the patient lies. A large aseptic field is obtained by the use of iodine, and touching of the thus disinfected skin is scrupulously avoided during the operative procedure. The iodine must be allowed to dry completely to prevent passing through an insufficiently disinfected dermis even the smallest quantity of iodine on the tip of the needle, which would act as an irritant to the meninges.

These apparently minor details are of great importance in achieving perfect results. Our experiences have demonstrated that the scrupulous observance

of these rules is responsible for our encouraging results. The patient is warned that he will perceive a slight prick, this to avoid sudden movements. With a small needle a dermal wheal is produced by injecting deep into the cellular tissues adrenalined novocaine. The needle is changed for one of larger caliber through which 2-3 cc. of the same solution are injected into the interspinal space, which will serve, as Sebrechts points out, to indicate the direction through which the spinal needle will travel. This needle enters at the level of the fourth lumbar interspace when anesthesia is needed for the lower abdomen, and at the level of the second interspace when anesthesia in the upper abdomen is aimed at. We always make the injection below the conus medullaris, the anesthesia, therefore, being radicular and not medullary.

In obese patients we use the procedure advocated by Maxon,[2] which consists in effecting local anesthesia of an area comprising 2 or 3 vertebrae; since palpation of the spin apophysis is next to impossible in these individuals, the tip of the needle will find its way in the right direction. The injection of a local anesthetic before puncture makes the latter a completely painless procedure, which will establish the confidence of the patient in the method. The puncture needle must be thin, with a short bevel and used for this purpose only. It is returned after being used. The box, the syringes and the needles are employed only to perform the anesthesia and for no other purpose.

The needle is introduced with the stylet on until it reaches the ligamentum flavum; at this point the stylet is withdrawn. The "drop sign" of Alberto Gutierrez[3] is of great value. This procedure offers two advantages: First, the surgeon is assured that the needle has reached the peridural space and that by inserting the needle a few more millimeters, it will find the proper site. Second, it permits the anesthetist to perform without difficulty and under all circumstances the peridural anesthesia of Pagés Dogliotti. Once the flow of the cerebro-spinal fluid has begun, the syringe is immediately connected, trying not to lose a single drop, except when high anesthesia is desired, and where the tension of the fluid appears to be too high. In such cases we permit from 20 to 30 drops to escape in order to allow a greater diffusion.

The amount of the percaine injected varies according to the following factors, an exact evaluation of which is gained only through experience: (a) the degree of desired anesthesia; (b) the tension of the cerebro-spinal fluid; (c) the general condition of the patient; (d) the neurovegetative tone of the patient. Example 1: patient in poor condition, vagotonic; operation on lower abdomen indicated; 0.004 mg. of percaine diluted in 3 cc. of cerebro-spinal fluid injected. Example 2: patient in good condition, sympathycotonic, surgery of the upper abdomen indicated; percaine 0.008 in 7 cc. of cerebro-spinal fluid injected. The minimum dose estimated as adequate is always resorted to.

The injection is made slowly, in order to bathe only the posterior roots in the anesthetic fluid, excluding as far as possible the anterior nerve roots where the fibers of the ortosympathetic run. As soon as the injection is completed, the syringe is withdrawn, leaving the needle in position, and the stylet is replaced. One should wait from 5 to 10 minutes and ascertain the level of the anesthesia by pinching the skin with some instrument. When the required level has been obtained, the needle is withdrawn. An intramuscular injection of 0.25 ctg. of efetonine is now made. In the rest of the cases, that is, in the 5 to 7 per cent of the

apparent failures, we reinject 0.0025-0.003 mg. of percaine every 5 to 10 minutes until the desired level of anesthesia is obtained. This is a simple matter, because the needle is still *in situ*. If in spite of the 0.015 mg. of percaine—the maximum dose usually injected—the level of anesthesia is still not sufficiently high, then we add a different salt, pantocaine or metycaine. Following the procedure outlined, we have at present practically no failures in spinal anesthesia.

When this technic is employed, the time consumed to secure a safe spinal anesthesia varies from 10 to 30 minutes; that is to say, we do not use it for the purpose of saving time. On the contrary, it occasionally requires more time than other types of anesthesia, but it has the advantage of shortening the operative period, because the surgeon will not have to deal with an incompletely anesthetized patient who makes the surgical procedure difficult and who may require the use of a complementary anesthesia, which, according to my personal experience, gives rise to a large number of postoperative pulmonary complications.

SUMMARY

In order to reduce the percentage of failures in spinal anesthesia, Dr. Pasman has devised a technic of administration using fractioned doses, modified and successfully employed by the author, who attributes the abovementioned failures to sympathicotonia.

The technic consists of: (1) The patient is placed in lateral decubitus. (2) Local anesthesia of the skin, cellular tissue and interspinal space is effected. (3) The needle is introduced, observing the "drop" sign, described by Alberto Gutierrez. (4) The dura mater is punctured. (5) The minimum calculated dose of percaine is injected. (6) A stylet is introduced, retaining needle in position. (7) If at the end of 10 minutes anesthesia has not attained the desired level, a further injection of 0.0025 mgr. to 0.003 mgr. of percaine is made. (8) This can be repeated at 5 minute intervals until the desired level is obtained. (9) Under certain circumstances other drugs may be added, such as metycaine, pantocaine, etc. (10) The results have been invariably successful.

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SUMARIO

El autor atribuye el fracaso de la anestesia espinal a la simpaticotonia, y para evitar esta complicación el autor recomienda la técnica desarrollada por el Dr. Pasman, como sigue: (1) Se pone el paciente en la posición decúbito lateral. (2) Para obtener la anestesia de la piel, tejido celular y el espacio interspinal se introduce la aguja, observando el "signo de gota" de Alberto Gutierrez. (3) Cuando se penetra la dura madre se inyecta la cantidad mínima calculada del percaine. (4) Se mantiene la aguja en posición y se introduce el stileto. (5) Si después de 10 minutos no se ha obtenido el nivel deseable de anestesia, se inyecta una dosis adicional de 0.0025 mgr. a 0.003 mgr. de percaine. (6) Si se hace necesario esta última dosis, se puede repetir en intervalos de cinco minutos hasta que se obtenga el nivel deseable.

Otras drogas como la metycaina y la pantocaina pueden añadirse.

RÉSUMÉ

Afin de diminuer le pourcentage d'insuccès dans l'anesthésie, attribués par Delorme à la sympathicotonie, Pasman

a recommandé une technique d'administration à doses fractionées qui ne lui a donné que des succès.

Voici la technique modifiée employée par Delorme: (1) Le patient est placé dans la position latérale. (2) On obtient une anesthésie locale de la peau, du tissu cellulaire et de l'espace interspinal. (3) La dure mère est fronctionée pour la dose d'injection minimale calculée de percaine. (4) L'aiguille mantenue en place, le stylet est introduit. (5) Si au bout de dix minutes le niveau désiré de la région anesthesiée n'a pas été atteint, on fait une autre injection de 0.0025 mgr. à 0.0005 mgr. de percaine. (6) Si c'est nécessaire on répète ces injections à intervalles de cinq minutes jusqu'à obtention du niveau anesthésié désiré.

On peut employer la metycaine, la pantocaine ou d'autres agents similaires.

Выводы

С целью уменьшить процент неудач при спинальном обезболивании, Пасман разработал методу фракциональных доз, которая неизбежно успешна. Метода Делорма такова: (1) Больной занимает боковое положение; (2) кожа и подкожныя ткани инфильтрированны соблюдая 'дроп' знак Албертс Гутиеррез'а; (3) прокол твердой мозговой оболочки ин'екция минимальной высчитанной дозы перкаина; (4) стилет вкладывается в иглу; (5) если через десять минут желаемый уровень обезболевания не был достигнут, то можно впустить 0.0025 мгр. до 0.003 мгр. перкаина; (6) Это можно повторить каждые пять минут до достижения желаемого уровня. Можно также добавить другие медикаменты, как метикаин или пантокаин.

Thyroidectomy

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EACH goiter is a disease unto itself. Each case must be managed as an individual one. While there is no such thing as doing two operations exactly alike, the basic fundamental principles of thyroid surgery should be adhered to in every case.

The first thing to consider is: Is a thyroidectomy needed?

Points that will help in reaching a decision are:

1. There is no such thing as an innocent goiter.[1]
2. All goiters, if given time, eventually become nodular, and all nodular goiters eventually become toxic. All undergo degenerative changes, and some nodular goiters become malignant.
3. If thyrotoxicosis is present, it is not necessary to be able to palpate the goiter.
4. It is possible to have more than one disease of a similar nature in an individual. Just because the patient has a similar nervous disease does not mean the goiter is innocent. It is almost inconceivable to have one gland of internal secretion out of line without having some other gland out of line.[2]
5. Thyrotoxicosis is a protean disease.[3] Once the disease is established, a thyrotoxic gland in a natural remission is an excellent gland to attack. It is still better if the gland has not established toxicity to any great extent. Do the work

before the storm.

6. Thyrotoxicosis is to be considered essentially a chronic disease.[4] The only time the disease is entirely acute is when it becomes suddenly established and death occurs, or a cure is produced before chronicity has time to be established. Too often an acute exacerbation of a chronic process is termed acute hyperthyroidism.
7. Symptoms of hyperthyroidism and hypothyroidism can be, and often are, present in the same individual at the same time.[5] We too frequently look for a full-blown picture of one with an entire absence of the other. The typical textbook picture is rare in comparison to the cases that are atypical; and often, as stated, fairly typical pictures of both diseases are present at the same time.
8. Removal of a goiter for prophylactic reasons against severe thyrotoxicosis, malignancies, chronic inflammation and, of course, eventual heart disease, has much to commend it as a logical and effective surgical procedure.
9. It is almost the universal opinion that surgery is the treatment of choice in thyrotoxicosis.[6]
10. Each thyroid gland that is not normal, i.e., abnormally enlarged, leads to degenerative changes.[7]

All goiters are toxic in the sense that they present some symptoms of dysthyroidism but, of course, all goiters are not toxic if measured from the standpoint of the metabolic rate or from the standpoint of the pulse rate, or, from any other one symptom or sign of thyrotoxicosis. The presence of a goiter with only one symptom of thyrotoxicosis, after all other allied and kindred diseases have *definitely* and *positively* been ruled out, establishes the diagnosis of thyrotoxicosis. The disease may be mild or incipient, but the disease is present.

There are many types of goiters as explained by so many different classifications. The facts of importance to remember are:

1. That there are as many different stages of toxicity of a goiter as there are pennies in a dollar. Perhaps more.
2. That regardless of the type or stage, all goiters eventually lead to heart disease—either typical thyrotoxic heart disease or degenerative heart disease.[8]
3. That a goiter has periods of exacerbations and periods of remissions just the same as any other chronic disease. But the entire process is one of progression until irreparable visceral damage has occurred. All during the life of a goiter there are constant physiologic and pathologic changes going on. These changes are influenced by many conditions—the weather, menstruation, pregnancy, emotionalism, excitement, etc. Changes can even be made for the better, temporarily, but the end result is visceral damage and a shorter life span.

The preoperative preparation of a patient for thyroidectomy should consist of all measures essential to place the patient in a condition where all the requirements for safe thyroid surgery have been met. These requirements are:

1. A lowered and/or favorable pulse rate.[9]
2. An increase in weight or, at least, a stationary weight.[9]
3. Lessened nervousness.[9]
4. An improved and satisfactory aponea test.[9]
5. A lowered and favorable basal metabolic rate.[9]
6. Good morale.

The condition of the vocal cords should be known before any thyroidectomy, and especially before an operation for recurrence. The blood calcium content should always be determined before operating on recurrences.

The above requirements can usually be met in a relatively short period, one to three weeks, by the conventional method of treatment, i.e., iodine, rest, sedatives and an increased caloric intake.

If the operator has even the slightest doubt as to the condition of the patient, the operation should be delayed. Thyroidectomy is never an emergency except in tracheal obstruction.

In cases that are severe in nature, and where the requirements cannot be met in the time mentioned (and these can usually be judged beforehand), then all precautions possible should be used; especially taking more time; continuing use of iodine, stimulating the liver with foods and drugs, such as intravenous glucose, insulin, bile salts, liver concentrate and glycine and, if necessary, enough time to permit a remission to occur from natural causes. It must be remembered that any type of interference, at the wrong time, can precipitate a crisis. This includes ligations and x-rays, but does not, necessarily, mean that the proper use of x-rays in selected cases is valueless and harmful.

Where one has met all the requirements for safe thyroid surgery, then his anesthetic should be considered. The surgeon should use the anesthetic that experience has proved best in his hands.

I have obtained, without exception, entirely satisfactory results with a basal anesthetic of 3 gr. of sodium amytal the night before and 6 gr. of sodium amytal two hours before the operation; and with 1/6 to 1/4 gr. of morphine and 1/200 gr. of atropine 30 minutes before the operation and 2 per cent novocaine, with or without adrenalin, used as a local block for the superficial cervical plexus and the descending branch of the twelfth nerve, which supplies the ribbon muscles. A total of not more than 16 cc., and often as few as 8 cc., is adequate.

The patient should be fully informed as to the exact nature of everything that is going to happen, except the actual operative steps, the day before the operation. The reason for the type of anesthetic used should be explained fully. This puts the finishing touches on the patient's morale and assures the operator of coöperation on the part of the patient.

The more toxic the patient, the more important is the anesthetic. Surely no anesthetic that markedly lowers the liver function should be used in a severely toxic case.

The fast and highly experienced operator has wide latitude in the choice of anesthetic, since the patient will not have to remain long under its influence. Any inhalation anesthesia has some bad effects on the patient.

It is not uncommon under local block anesthesia, even though the operation be prolonged, for the pulse rate to be better at the end of the operation than at any time during the stay in the hospital prior to the operation. This cannot be said of inhalation anesthesia, for if a patient remains under it long the pulse will be fast, due to the anesthetic itself.

The operative technic should begin with draping the patient after cleansing and sterilizing the field so that the wound will not be contaminated.

At this point an elliptical collar incision is made through the skin, subcutaneous tissues and the platysma muscle. The point of election for the incision depends on the size of the goiter as does the length of the incision. It is well to remember that the skin stretches mar-

velously well, and it is not necessary to slit the neck from ear to ear. All patients appreciate a small, neat, scar after their recovery. This does not mean that adequate exposure should be sacrificed for the sake of comeliness. It is rarely, if ever, necessary to cut the ribbon muscles regardless of the size of the goiter, for the larger the goiter, the more stretched are the ribbon muscles, and they can be neatly retracted for adequate exposure. One step absolutely essential in thyroidectomy is to enter the proper plane of cleavage.[10] This is between the true capsule and the surrounding tissues. In this way the entire gland can be delivered and everything else preserved, especially the parathyroid bodies. Having delivered one lobe, the upper pole should be dissected out and ligated adequately. Then the same steps should be taken on the opposite side. At this point the trachea should be located and the lower poles of the thyroid clamped and tied. Then one can stay on top of the trachea and remove the entire gland, leaving the trachea bare, as it should be, and each lobe fossa entirely empty. After tying each vessel or tissues clamped in the most accurate manner, and after the surgeon has accomplished complete hemostasis, the wound is ready for closure. The ribbon muscles should be brought together, the subcutaneous tissues and platysma muscle sewed snugly together to help prevent serum, and the skin approximated with a subcuticular stitch which can be pulled out on the second postoperative day.

I use plain No. 1 catgut for the large vessels and plain No. 0 catgut for the smaller vessels and the subcutaneous tissues. These are absorbed quickly and in case of accidental infection of the wound, the wound will not have to drain until all the foreign body ligatures and sutures slough out.

How much of the goiter should be removed? In a hyperplastic gland, since the entire gland is involved, the entire gland should be removed. If any portion of the gland is left, the patient has to put up with that much of the disease, even though he may be relieved of a large part of his burden. The avenue to recurrence is wide open, and too often he is in the midde of the road of a persistence.

In the nodular goiter one must remember that nodules must have a beginning. The patient surely has the tendency, and who can tell without inspection that the lobe of the opposite side does not contain a nodule? Too often it does, and those nodules are the seat of malignant changes. The author would not be one to argue over the removal or leaving behind of a small fragment of tissue in a gland that is not highly friable and toxic to the detriment of his patient's immediate well being, but the rule should be to worry about how much is left in and not worry about how much was taken out. As long as it is all thyroid tissue that was removed, all is well if enough was removed. We must remember that the young use this gland to grow up on, but the matured do well without any part of their goiter. The removal of the entire normal gland is an entirely different subject.

It has been reported on good authority that lobectomies save many lives. One explanation is that the liver is not "let down" too quickly. Surely if the patient and the operator are in trouble the operator should stop where he is, and he should have his field so in order that he can stop. Another explanation is that a lobectomy can be done more hurriedly. Be all this as it may, in the author's experience in the more toxic cases, the more thorough the job the less reaction and the more prompt the recovery.

Drainage is not used because it has a tendency to promote hemorrhage. If all the vessels are securely ligated there will be no need for drainage.

The prevention of a crisis is of the utmost importance. Postoperatively, assuming that nothing but the thyroid was disturbed (that is, there was no injury to the nerves and the parathyroids were preserved), the control and prevention of hemorrhage is of the utmost importance, because hemorrhage may directly or indirectly precipitate a crisis. Hemorrhage causes pain and emotional excitation, either of which may be the cause of a crisis. Hemorrhage causes increased wound secretion and focal infection, or it may cause asphyxia, any of which may bring on a crisis. Hemorrhage through fear may cause an increased amount of adrenalin in the blood stream and hence be a contributing factor.[11] It is imperative that hemorrhage be prevented. Not the slightest hemorrhage should be tolerated before closing.

The immediate postoperative care depends upon the toxicity of the case and the age of the patient. Generally speaking, the young should be sedated and the aged stimulated. None should be allowed to suffer pain. All should have an adequate amount of iodine and glucose. Blood transfusions, oxygen with helium, vitamins etc., and good nursing care are paramount in the bad risk goiter.

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RÉSUMÉ

Les critéria qui déterminent la nécessité de la thyroïdectomie sont donnés. Il importe d'instituer un traitement opératoire qui nous procurera un pouls favorable ou moins rapide, un poids corporel au moins stationaire, sinon augmenté, un état nerveux accalmé, une accalmie nerveuse, une diminution du taux métabolique, un optimisme mental. Il faut que l'opérateur connaise l'état des cordes vocales de son malade. La préparation du malade demande de deux à trois semaines.

L'auteur préconise la lobectomie sous anesthésie locale (blocage), employant du catgut ordinaire No. 1 pour les gros vaisseaux et du catgut ordinaire No. 0 pour les vaisseaux du petit calibre. Il est très important de contrôler toute hémorrhagie consécutif à l'acte opératoire. Chez les jeunes on emploiera la sédation, chez les malades d'âge avancé la stimulation.

SUMARIO

Se han presentado las razones que determinan la necesidad de la tiroidectomía. La preparación del paciente reduce el peligro de la cirugía, especialmente cuando se consige la reducción del pulso, el aumento de peso o por lo menos mantener el peso estacionario, y cuando disminuye la nerviosidad del paciente y se obtiene un metabolismo basal favorable. Es también de valor el saber el estado de las cuerdas vocales. De una a tres semanas es generalmente suficiente para obtener una preparación adecuada.

El autor recomienda la lobectomía bajo anestesia local y el uso del catgut No. 1 para la ligadura de los vasos grandes y de No. 0 para los más pequeños.

Es importante el controlar las hemorragias postoperatorias, en general el

paciente joven es tratado por la sedación y el de edad avanzada por la estimulación.

Выводы

Автор дает указания для тироидектомии. До-оперативная подготовка имеет в виду: умедление пульса; придачу веса; понижение нервности; понижение обмена; хорошое самочувствие; определение состояния голосовых связок. Удовлетворительная подготовка требует от одной до трех недель. Автор рекомендует лобектомию под местным обезболеванием употребляя катгут Но. 1 для подвязки крупных сосудов и катгут Но. 0 для перевязки мелких сосудов.

Neumonectomıa Total Experimental*

(Total Experimental Pneumonectomy)

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SUMMARY

The technic of experimental pneumonectomy is presented as follows: (1) incision parallel to the ribs; (2) separation of the Latissimus Dorsi; (3) separation of the Serratus Major; (4) subperiosteal resection of the fifth rib; (5) pleurotomy; (6) ligature of the vessels; (7) ligature, section and suture of the stump; (8) pleurotization; (9) closure of the pleural cavity; (10) suture of the outer layers, and (11) dressing.

SUJETO en decúbito lateral derecho, fijado sobre la canaladura de Claudio Bernard. Operador colocado del lado dorsal. Incisión oblícua hacia el esternón y la extremidad cefálica, perpendicular a la dirección de las costillas: el extremo dorsal sobre el borde externo de la masa sacro-lombar, el extremo ventral sobre una línea transversal que pase por el borde caudal de la escápula; longitud en proporción a la talla del animal, comprendera seis costillas con sus respectivos espacios (Fig. 1).

Cortar piel, tejido celular y fibras del cutáneo que siguen una dirección paralela a la incisión (Fig. 2), hasta descubrir las fibras del dorsal ancho que tienen igual disposición. Hacer la hemostasis cuidadosa de los vasos subcutáneos. Identificar el borde ventral del dorsal ancho en toda la longitud de la herida: rechazar hacia el vientre el labio cutáneo correspondiente separando el telido celular subcutáneo, de la cara superficial del dorsal, por medio de cortes de bisturí, mientras se lleva hacia el dorso el músculo; colocar un gancho separador (Fig. 3).

Descubrir las digitaciones del serrato mayor. Cortar el tejido célulo-grasoso que continúa hacia el vientre el borde del dorsal; introducir los índices debajo del músculo, apartarlos después para separar su cara profunda de la superficial del serrato; una capa de tejido celular laxo facilita esta maniobra; colocar ganchos separadores (Fig. 4).

RESECCIÓN SUB-PERIÓSTICA DE LA 5A COSTILLA:

(a). Determinarla palpando la pared costal con la extremidad de los dedos debajo del dorsal, del vértice del tórax hacia la extremidad caudal.

*Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

(b). Separar las digitaciones del serrato en el espacio situado sobre la costilla. Con un gancho separador hacer tracción enérgica hacia el dorso para descubrir la mayor extensión posible de la cara superficial de la costilla: aparece el tejido celular laxo que cubre el periostio y ramos perforantes intercostales que deben ligarse (Fig. 5).

(c). Incidir el periostio y separarlo completamente de las caras y bordes (Fig. 6).

(d). Resección ósea (Fig. 7).

ABERTURA DE LA CAVIDAD PLEURAL:

(a). Incidir el periostio y pleura parietal en dirección de la costilla extirpada (Fig. 8).

(b). Iniciar la insuflación rítmica.

(c). Colocar dos ganchos separadores de Gosset: el primero perpendicular a la dirección de las costillas, el segundo paralelo a ellas; con la rama dorsal de este último comprender solo los planos blandos, con la ventral abarcar también el extremo respectivo de la costilla resecada (Fig. 9).

(d). Seccionar los cabos óseos que hacen saliente después de colocar los ganchos de Gosset.

LIGADURA DE LOS VASOS:

I. Arteria pulmonar.

(a). Luxar el lóbulo cefálico hacia la extremidad caudal sin exteriorizarlo, ayudándose con una compresa: aparece la porción cefálica del hilio pulmonar y la aorta toráxica hacia el dorso.

(b). Identificar la rama izquierda de la arteria pulmonar, inmediatamente abajo del cayado aórtico en el borde cefálico del hilio.

(c). Levantar la pleura mediastina que cubre la arteria con pinza de disección y hacer un corte de tijera siguiendo el eje del vaso.

(d). Disecar la arteria descubierta en la mayor extensión posible.

(e). Pasar debajo de ella dos agujas de Cooper en sentido contrario y apartarlas para completar la liberación del vaso. Cuidar de no herir en este momento la vena pulmonar superior (Fig. 10).

(f). Pasar otra aguja de Cooper montada con hilo grueso enmedio de las anteriores y retirar éstas.

(g). Anudar en la porción más distal de la arteria, sin cortarlos extremos del hilo.

(h). Pasar y anudar sucesivamente dos ligaduras más ayudándose en estas maniobras con los cabos largos de la primera ligadura y las agujas de Cooper. Estas nuevas ligaduras se harán en la porción central de la arteria dejando entre ellas y la periférica una distancia no menor de un centímetro.

(i) Seccionar la arteria, sosteniéndola con los extremos de las tres ligaduras, más cerca de la ligadura periférica que de las centrales.

(j). Cortar los extremos de las ligaduras.

II. Venas pulmonares.

(a). Exteriorizar todo el pulmón con una compresa, rechazándolo hacia el dorso para exponer la cara ventral del hilio: aparecen las venas pulmonares cubiertas por la pleura mediastina, en íntima relación con la superficie correspondiente del bronquio. La superior se halla sobre el borde cefálico de éste, muy cerca de las ligaduras centrales de la arteria; la media, de calibre menor, camina sobre la porción media del bronquio; la inferior, de volumen mucho mayor que las otras, sigue el borde caudal apartándose de éste en su extremo central y ocupando después el borde cefálico del ligamento triangular (Fig. 11).

(b). Identificar las venas en el órden señalado.

Vena superior.

(a). Levantar la pleura mediastina entre las venas superior y media con pinza de disección, hacer un corte de

Fig. 1. Línea de incisión.

Fig. 2. Incidida la piel y el tejido celular se ven las fibras del cutáneo.

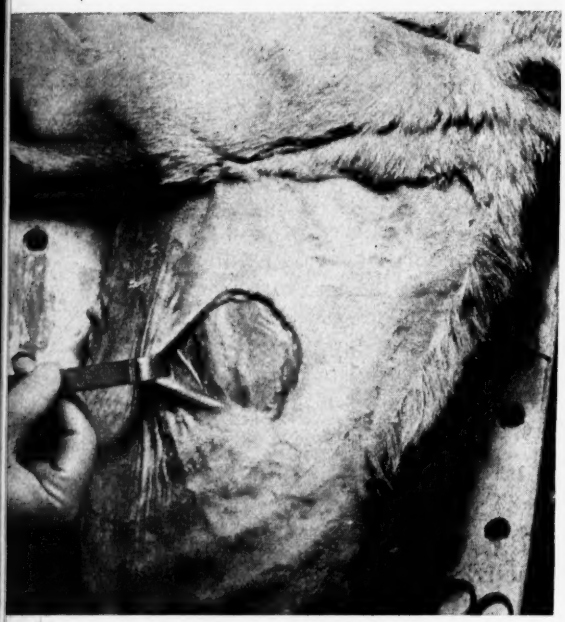

Fig. 3. Se ha descubierto el borde ventral del dorsal; el gancho separa la piel.

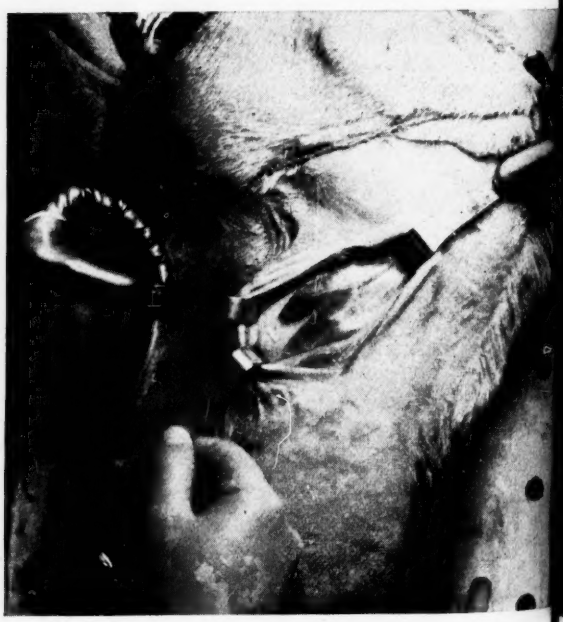

Fig. 4. Se aprecían las digitaciones del serrato mayor separando ampliamente el dorsal y los bordes cutáneos.

Fig. 5. Sobre la 5a costilla se han abierto las digitaciones del serrato que la cubrían.

Fig. 6. Se ha quitado el periostio en toda la longitud de la costilla por resecar.

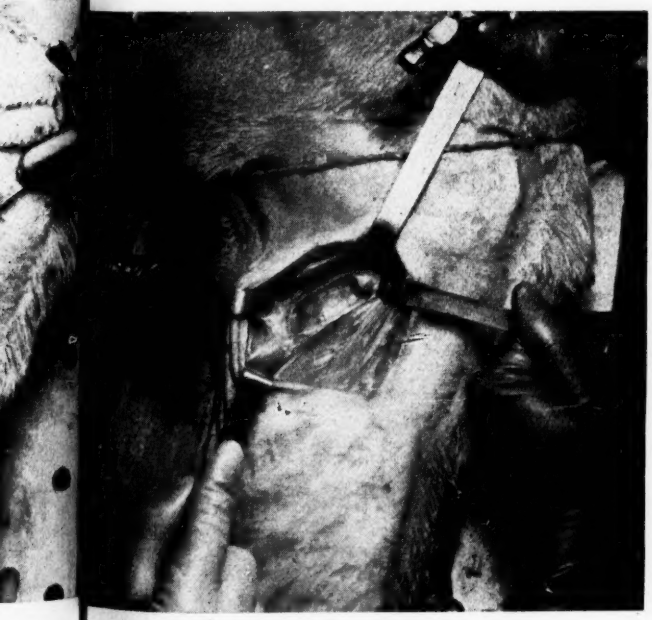

Fig. 7. Resección subperióstica de la costilla terminada.

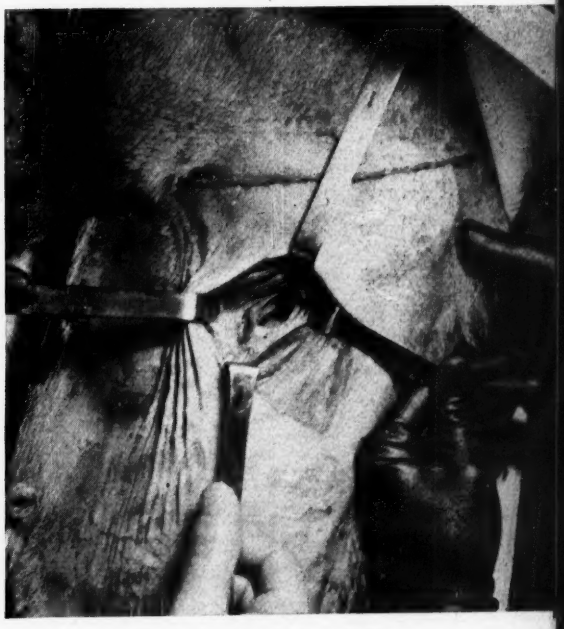

Fig. 8. Cavidad pleural abierta.

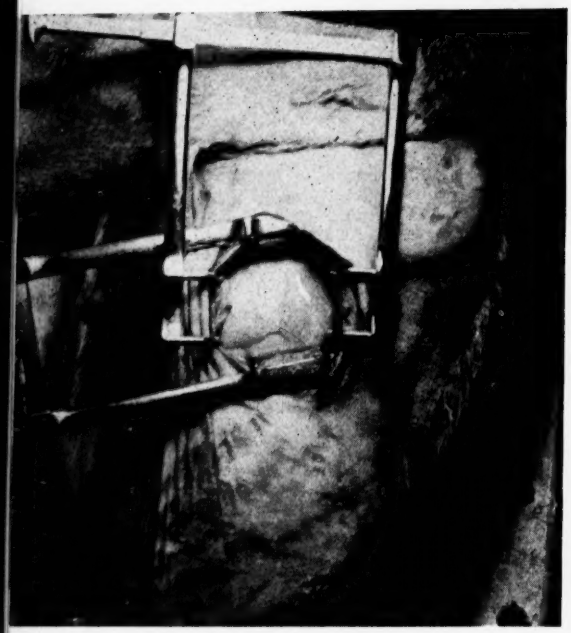

Fig. 9. Ganchos separadores automáticos colocados correctamente.

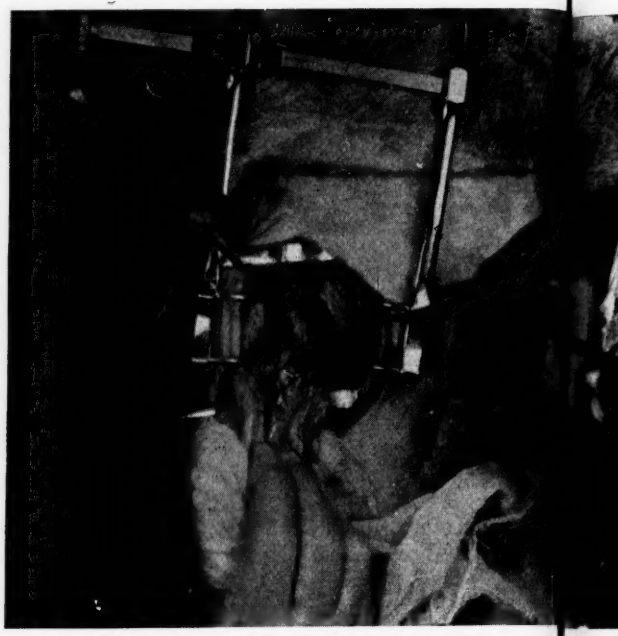

Fig. 10. Las agujas de Cooper levantan la arteria pulmonar. El pulmón se ha exteriorizado hacia la extremidad caudal para dar claridad a la figura.

Fig. 11. Se ha resecado toda la pared costal para permitir la fotografía. Pulmón exteriorizado y rechazado hacia el dorso.

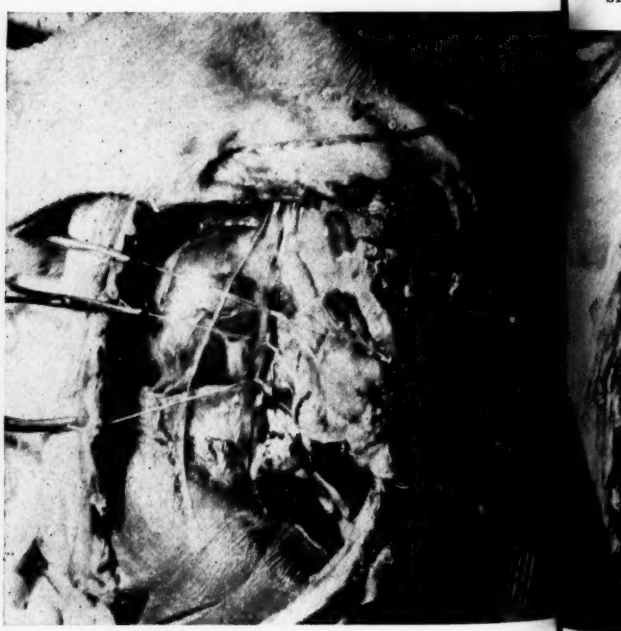

Fig. 12. Ligaduras de las venas pulmonares terminadas, antes de cortar los vasos.

Fig. 13. Pulmón llevado hacia el plano ventral. Se observa perfectamente el neumogástrico y la pleura mediastina dorsal que lo cubre, lo mismo que al bronquio.

Fig. 14. La cara dorsal del bronquio se ha descubierto rechazando el neumogástrico y ligando las arterias bronquiales. Se ven los muñones ligados de la arteria y de las venas pulmonares.

Fig. 15. Aspecto de la cavidad después de hecha la cinta. Se procederá a la sutura del muñón bronquial.

Fig. 16. Ligado el bronquio, una pinza sostiene la pleurización.

tijera perpendicular a la dirección de los vasos.

(b). Descubrir la superficie ventral del bronquio separando de ella la vena.

(c). Pasar debajo de ésta dos agujas de Cooper y apartarlas para completar la liberación del vaso.

(d) Pasar otra aguja de Cooper montada con hilo enmedio de las anteriores y retirar éstas.

(e). Anudar en la porción más distal de la vena sin cortar los extremos del hilo.

(f). Pasar otra ligadura y anudar lo más cerca posible del pericardio, dejar entre ambas una distancia cuando menos de un centímetro.

(g). Seccionar la vena sosteniéndola con los extremos de las ligaduras.

(h). Cortar los extremos de los hilos.

Vena media.

(a). Levantar la pleura mediastina entre las venas media e inferior en la misma forma descrita para disecar la superior.

(b). Hacer maniobras iguales para su ligadura.

Vena inferior.

(a). Cortar el extremo caudal del ligamento triangular.

(b). Pasar las agujas de Cooper debajo de la vena ya separada del bronquio pero cubierta por las pleuras mediastinas ventral y dorsal; evitar de comprender en este tiempo el neumogástrico.

(c). Terminar las ligaduras del mismo modo señalado para la vena superior (Fig. 12).

(d). Completar la disección de la superficie ventral del bronquio hasta llegar a la bifurcación de la tráquea: rechazar hacia el pericardio las ligaduras centrales de las venas y la pleura mediastina ventral que las cubre; ayudarse con gasa montada en una pinza.

III. Arterias bronquiales.

(a). Llevar el pulmón exteriorizado hacia el vientre, sostenido con una compresa, para exponer la cara dorsal del hilio: aparece la pleura mediastina dorsal que cubre íntimamente el bronquio, los hiletes pulmonares del neumogástrico y las arterias bronquiales; éstas son apenas visibles, generalmente existen dos: una más pequeña situada en la porción media, sigue la rama principal del nervio, otra llega al bronquio por la porción más caudal y dorsal de él, paralela y muy cerca del tronco del neumogástrico, que se vé perfectamente bordeando el extremo dorsal del hilio (Fig. 13).

(b). Levantar con tijera y pinza de disección la pleura mediastina dorsal separándola del bronquio.

(c). Colocar pinzas de hemostasis finas en los sitios correspondientes a las arterias.

(d). Cortar la pleura, junto con los filetes nerviosos y las pequeñas arterias pinzadas, lo más lejos posible del tronco del neumogástrico.

(e). Ligas los vasos con catgut fino.

(f). Terminar hacia el dorso la separación de la pleura para dejar completamente descubierta la cara correspondiente del bronquio; ayudarse con gasa montada en una pinza (Fig. 14).

LIGADURA, SECCIÓN Y SUTURA DEL BRONQUIO:

(a). Pasar una cinta de lino de tres milímetros de ancho, rodear el bronquio inmediatamente después de la bifurcación traqueal y anudar con presión suficiente para ocluír la luz, pero no exagerada porque esfacelaría el muñón; sostener los extremos largos de la ligadura con una pinza.

(b). Colocar un clamp curvo en el extremo distal del bronquio ligado, a una distancia approximada de dos centímetros, cortar con tijeras junto al clamp; sostener el muñón bronquial con los extremos de la ligadura (Fig. 15).

(c). Hacer puntos aislados en los bordes de sección del muñón bronquial con

catgut crómico atraumático número 1.

(d). Hacer otra línea de sutura entre la anterior y la ligadura con puntos en U perpendiculares al eje bronquial; usar el mismo material y comprender si fuera necesario la cinta de la ligadura.

(e). Cortar los extremos de ésta.

PLEURIZACIÓN:

Hacer un surjete continuo para suturar los bordes seccionados de las pleuras mediastinas ventral y dorsal cubriendo los muñones vasculares y el bronquial.

(a). Comenzar en el ángulo cefálico de la brecha mediastina, sobre el muñón de la arteria pulmonar; usar catgut atraumático 00.

(b). Cuidar de no comprender en las puntadas los muñones vasculares, el pericardio ni el neumogástrico.

(c). Terminar en el ángulo caudal de la brecha mediastina, sobre el ligamento triangular seccionado (Fig. 16).

CERRADURA DE LA CAVIDAD PLEURAL:

(a). Limpiar perfectamente la cavidad.

(b). Quitar los ganchos de Gosset.

(c). Colocar ganchos de Farabeuf, separar el dorsal y el borde cutáneo ventral (Fig. 17).

(d). Hacer puntos aislados con catgut atraumático número 1 abarcando únicamente los haces del dentado; comenzar en el extremo dorsal de la herida; terminar en el ventral, anudando el último punto precisamente en inspiración completa para desalojar la mayor cantidad de aire de la cavidad; ayudarse en este tiempo con una pinza entreabierta introducida en ella que se retira rápidamente en el momento necesario (Fig. 18).

(e). Suprimir la insuflación rítmica.

SUTURA DE LOS PLANOS SUPERFICIALES:

(a). Hacer puntos de colchonero para unir la cara profunda del dorsal a la superficial del dentado; comenzar por la porción dorsal (Fig. 19) en líneas paralelas a la dirección del primero (Fig. 20); terminar suturando su borde al tejido celular profundo y a las fibras del recto, en toda la longitud que se había separado al principio, emplear ahora puntos separados; usar catgut simple fino (Fig. 21).

(b). Hacer puntos semejantes a los descritos para unir la cara profunda de la piel a la superficial del dorsal; comprender tejido celular subcutáneo y fibras del músculo; comenzar en la porción ventral del despegamiento cutáneo (Fig. 22); terminar suturando el tejido célulo-grasoso de ambos bordes de la herida; usar el mismo material (Fig. 23).

(c). Hacer puntos aislados con hilo grueso en los labios cutáneos (Fig. 24).

APÓSITO:

(a). Limpiar la herida suturada con agua oxigenada.

(b). Secar frotando con éter; rectificar el afrontamiento de los bordes.

(c). Impermeabilizar con colodión; cubrir con una tira delgada de gasa fijándola a la piel con la misma substancia.

La técnica descrita es el resultado de múltiples intentos realizados con el fin de garantizar la sobrevida indefinida de los animales.

Se obtiene con ella la cicatrización de la herida por primera intención o por infección, solo de los planos superficiales y siempre moderada, sin comunicar al exterior la cavidad pleural que causa la muerte del sujeto. Primer punto importante que depende exclusivamente de la forma de abrir y de cerrar la cavidad toráxica, sin comprender en las suturas la pleura ni los músculos intercostales, circunstancia que no impide una oclusión hermética.

Se consigue también una cicatrización definitiva del hilio pulmonar, indispensable en lo que se refiere especialmente al muñón bronquial, para evitar las consecuencias fatales de su esfacela. Se-

Fig. 17. Presentación de la herida para hacer la sutura del dentado.

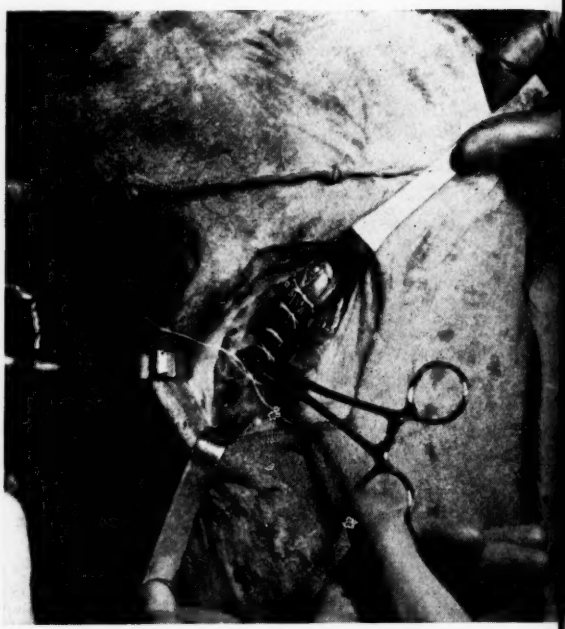

Fig. 18. Puntos aislados abarcando los haces del dentado; una pinza separa los bordes en el extremo ventral, mientras se anuda el último punto al terminar una inspiración.

Fig. 19. Primer punto para unir la cara profunda del dorsal a la superficial del dentado.

Fig. 20. Se continúan los mismos puntos en líneas paralelas hacia el borde ventral del dorsal.

Fig. 21. Puntos separados comprendiendo el borde ventral del dorsal y el tejido celular profundo.

Fig. 22. Se empiezan los puntos que adosan la cara superficial del dorsal a la profunda de la piel.

Fig. 23. Puntos aislados en el tejido célulograsoso subcutáneo.

Fig. 24. Puntos separados en los bordes de la piel.

gundo hecho interesante que se halla bajo el control de los tiempos mediastinales, ya sea en la manera de aislar los elementos como en las ligaduras y en los tipos de sutura empleados.

SUMARIO

Se presenta una técnica de neumectomía total en el perro, con la cual se logra una sobrevida indefinida: (1) incisión oblicua paralela a las costillas; (2) separación del Dorsal ancho; (3) id. del Serrato mayor; (4) resección subperiostea de la 5a costilla; (5) pleurotomía; (6) ligadura de los vasos; (7) ligadura, sección y sutura del bronquio; (8) pleurización; (9) clausura de la cavidad pleural; (10) sutura de los planos superficiales; y (11) apósito.

RÉSUMÉ

Une technique de pneumectomie totale, chez le chien, donnant une survie indéfinie, est présentée:

(1) Incision, parallele aux coôtes; (2) écartement du Grand Dorsal; (3) id. du Grand Dentelé; (4) résection sous-periostée de la 5ème côte; (5) pleurotomie; (6) ligature des vaisseaux; (7) ligature, section et suture du moigon; (8) pleurisation; (9) clôture de la cavité pleurale; (10) suture des plans superficiels, (11) pansement.

Выводы

Техника экспериментальной пневмонектомии описывается: (1) разрез параллельно ребрам; (2) сепарация латиссимус дорси; (3) сепарация серратус майор; (4) субпериостальная резсекция пятого ребра; (5) плевротомия; (6) перевязка кровеносных сосудов; (7) перевязка, сечение и шов культи; (8) плевротизация; (9) шов плевры; (10) шов внешних слоев и (11) перевязки.

Cholecystoduodenostomy for Hepatomegaly with Jaundice

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GREAT FALLS, MONTANA

THAT biliary intestinal anastomosis has a definite place in certain obstructive lesions of the common duct seems to be well established. It cannot be employed when there is involvement of the cystic or hepatic ducts or when we are dealing with small atrophic or calcified gall bladders. It is of value when the common duct has been injured, in cases where the gall bladder is still intact, in deformity of the common duct, either congenital or acquired, in inflammatory lesions, acute and chronic, intrinsic or extrinsic to the common duct and new growths, benign or malignant, involving the duct itself or from contiguous organs. Like any other surgical procedure it requires the exercise of sound judgment in its application.

CASE REPORT

G.S., breed Indian, aged 62, was admitted to the Columbus Hospital, January 2, 1941. Cholecystoduodenostomy was performed January 4, 1941, and the patient discharged February 2, 1941. The chief complaints on admission were: The patient had been ailing for the past six months. He gradually became weaker and lost weight. His eyeballs at times appeared deeper yellow, and his skin seemed darker in color. About noon each day he developed a dull pain in his stomach, which lasted until midnight. Eating of fruits and drinking of milk increased the pain. The patient stated that he did not belch, had no

nausea and did not vomit. Stools were lighter in color than they had been. Prior to his illness the patient weighed 185 pounds, his present weight being about 150 pounds.

Past medical history revealed that the patient had had diphtheria, measles, frequent colds, rheumatism of the knees and wrists, surgery for double hernia and a tonsillectomy.

Personal history: irrelevant.

Family history: unobtainable.

Physical examination: male breed Indian in early 60's, thin and emaciated. Skin turgor poor. Sclera icteric. Throat, tonsils out. Teeth, carious. Gums spongy and bleed easily. Neck, scrawny but no adenopathy. Thorax, contour normal, muscle tone poor. Pulmonary fields, clear. Heart, not enlarged, tones good; regular in rhythm and rate; no murmurs. Arteries not sclerotic. Blood pressure 122/68. Abdomen, normal in contour. No visible peristalsis or tumor masses. Scars in both inguinal regions. Beginning in the left lower quadrant, no rigidity or palpable masses until the left hypochondrium was reached; here there was a definite sense of resistance which extended across the upper abdomen down through the entire right quadrant to the region of the crest of the ilium and obliquely upward and to the left hypochondrium. In this area there was a dull outward percussion. No marked increase in liver edge could be discovered, although the patient was very thin. In the region of the tip of the ninth rib there was a marked increase in tenderness. Sentinel nodes were not palpable. Rectal examination was negative for tenderness, adenopathy or enlarged prostate. Neurologic examination was negative.

Tentative diagnoses: obstructive jaundice; hepatomegaly due to common duct obstruction.

Gastro-intestinal and gall-bladder series: heart, normal in shape, size and position; rhythm normal; no abnormal shadows in the mediastinum or pulmonary fields; costophrenic angles clear. Esophagus showed no filling defects, spasm or diverticula. Stomach normal in size and position. Peristalsis active. No filling defects, niches, incisuria or accessory pockets. Emptying time four hours. Duodenal cap rather large. Fills normally. Curve of duodenum normal but somewhat distended. Gall bladder not visualized after oral dye administration.

Impression: no evidence of gastro-intestinal pathology; pathologic gall bladder.

Laboratory report: Urine, negative; RBC., 4,350,000; WBC., 8100; hemoglobin, 87.5 per cent; color index, 1.01; coagulation time, 4½ min.; neutrophiles, 63 per cent; eosinophiles, 1 per cent; lymphocytes, 35 per cent; mononuclears, 1 per cent. Serological examinations: Wassermann negative; Takata-Ara slightly positive; sedimentation rate, rapid fall within one hour. Blood chemistry: non-protein nitrogen, 35.7 mgm.; urea, 18 mgm.

OPERATION

On January 4, under cyclopropane, helium and supplemental ether anesthesia an *exploratory operation* was performed. Upon opening the peritoneal cavity, the liver immediately presented itself. It extended from the left hypochondrium obliquely downward, the edge half way between the costosternal border and the umbilicus, to the crest of the ilium. The liver edge was sharp. Its dark brown surface was mottled and covered with palpable nodules. On visual and palpatory inspection, its under surface appeared the same, except that the nodules were larger, especially in the region of the caudate and quadrate lobes and the common duct. Numerous dense adhesions fixed the duodenum deep in the hepatorenal angle. The abdominal cavity was free of fluid or ascites. There was no gross pathology of the stomach or the duodenum. The spleen was moderately enlarged and fibrous to palpation. The head of the pancreas was firm but not nodular, the body and tail which could be palpated seemed likewise free of nodulations. The appendix was of the short fibrous type. Due to the nodulations on the under surface of the liver, the hepatic and common ducts could not be visualized. The gall bladder, very thin walled and distended, measured about 17 cm. long, with a diameter of at least 9 cm. I could easily hold the distended bladder in my hand. Its wall was transparent. No stones could be pal-

pated or visualized. The common duct could not be palpated. Very thin fluid contents, clear and yellowish in color, were evacuated.

Believing that some form of biliary intestinal anastomosis would be more physiologic than a permanent external drainage, a cholecystoduodenostomy was chosen. The procedure was carried out easily, due to the size of the bladder, which was left *in situ*. At the same time a wedge-shaped biopsy of the liver was made. The wound was closed in layers with one small cigarette drain to the site of anastomosis. Total operating time, one hour and thirty minutes.

Postoperative diagnoses: obstruction of common duct due to neoplasm, possibly carcinoma. Biliary cirrhosis with nodular hyperplasia, due to partial duct obstruction.

Pathologic histology report: Wall of the biopsy specimen of the gall bladder infiltrated with lymphocytes. Shows also formation of granulation tissue. Liver tissue shows evidence of cirrhosis. No malignant changes noted. Diagnoses: chronic cholecystitis; cirrhosis of the liver. Sig: T.W.

Progress: Recovery, uneventful. One transfusion was given and, routinely, intravenous fluids. Distention was controlled by immediate use of suction drainage and enemata of glycerin and water in proportion of 2/2. Medication consisted of prostigmine 1;2000 ampules i every four hours for six doses.

Follow-up: This patient has been seen at least every two months during the past year. He has returned to work. He is able to take almost all except the leguminous foods. The liver has become slightly smaller. His present régime of medication consists of one tablet of dehydrocholic acid daily, and large doses of vitamin B complex. Only rarely does he need saline cathartics. Correction of dental condition has also been beneficial.

Comment: The literature indicates that a procedure such as the one reported has a definite place in biliary surgery. Cholecystoduodenostomy has for its purpose the making of a patient subjectively and objectively more comfortable. Probing of the common duct in this case was avoided, and in fact I am personally chary of the procedure, preferring the use of either a 10 or 12 FS soft rubber catheter and 10 cc. syringe for irrigating. Probing and so-called dilatation of the common duct lends itself to nothing better than additional trauma.

CONCLUSIONS

Cholecystoduodenostomy has a place in hepatobiliary surgery.

Biliary intestinal anastomosis is not a formidable procedure, but one which may be safely carried out by the average surgeon.

Biliary intestinal anastomosis prevents the loss of a necessary digestive fluid, which occurs when an external fistula is created by cholecystostomy.

Biliary intestinal anastomosis cannot be employed in atrophied or calcified gall bladders, nor is it of value when both the cystic and common ducts are involved.

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RÉSUMÉ

La cholécystoduodenostomie a été employée avec succès dans l'hépatomégalie avec jaunisse.

Un cas est rapporté et les avantages du procédé sont énoncés: (1) Le malade est plus confortable. (2) Le cholédoque n'est traumatisé ni par sondages ni par dilatation. (3) La technique de l'opération est à la portée de tous les chirurgiens. (4) La perte du fluid digestif est évité par l'anastomose biliaire intestinal.

L'opération est sans valeur si les conduits cystique et biliaire communs sont lésés, et aussi ne doit pas être employée si la vésicule biliaire est atrophiée ou calcifiée.

SUMARIO

La colecistoduodenostomía ha sido empleada con éxito en la hepatomegalia con ictericia.

Se presenta un caso demostrando las ventajas del procedimiento quirúrgico, por las razones siguientes: (1) El paciente se siente más cómodo. (2) Todo el traumatismo ocasionado por el uso de la sonda para la dilatación del colédoco se evita. (3) El procedimiento de colecistoduodenostomía puede ser ejecutado por un cirujano de experiencia ordinaria. (4) Se evita la pérdida de líquidos digestivos por la anastomosis biliar-intestinal.

Esta operación no tiene utilidad en caso de obstrucción del cístico ó del colédoco ni debe practicarse cuando la vesícula muestra calcificación o atrofia.

Выводы

Автор удачно лечил случай генатомегалии с желтухой посредством холецистодуоденастомий. Выгоды этой операции в том что: (1) самочувствие пациента поправляется; (2) избегается травма халедока; (3) операция не требует тренировки; (4) сохраняется пищеварительный сок.

Эта операция не употребима при заболеваниях цистика или холедока, или случаях где желчной пузырь находится в стадии атрофии или кальцификации.

Malformations of the Gall Bladder

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A DOUBLE gall bladder and a gall bladder with a septum are frequently confused, and as recently as 1940 Stolkind reported a morphologic anomaly, the "hourglass gall bladder." Some writers have likewise confused the presence of a septum with that of folds or pleats in the gall-bladder wall which tend to separate the gall-bladder cavity into two or more separate compartments, giving a shadowgram which the roentgenologist interprets as a "Phrygian cap" gall bladder, an error shared in 1937 by J. Belot and L. Naham in France, by William Mayer, Franklin Carter and L. Meeker in the United States, and by Mario Duque in Brazil.

It is important that these anomalies be clearly differentiated and given their proper and anatomic designation as morphologic varieties.

In classifying these malformations a septum may be defined as a tissue dividing a cavity or hollow organ into two compartments. Thus we would speak of a vaginal septum as a structure or tissue wall dividing the vagina into two parts and would differentiate it from the vaginal diaphragm, a structure di-

viding the vagina into two parts but possessing a central opening or outlet which keeps the two cavities connected.

By the same token, a "vesicular septum," when referred to the gall bladder, is an anatomic structure separating the gall bladder into two cavities with no connection whatever, while the "diaphragm" is a structure or partition having a central aperture which allows free passage of liquids contained in the gall bladder. Such a structural formation gives rise to what is variously called "hourglass images," "hourglass vagina," "hourglass gall bladder," "hourglass stomach," etc.

The gall bladder with a septum can never produce the image of "Phrygian cap," because if there is a septum the x-ray contrast cannot reach the fundus of the gall bladder, which therefore is not visualized roentgenologically. Such an image appears when there is a fold in the wall that causes distortion or malformation in the fundus of the gall bladder. It is a type of anomaly entirely different from the one brought about by the presence of a septum and should not, therefore, be confused with it.

Still less understandable is the confusion between gall bladder with a septum and double gall bladder, when the septum is transverse and we obtain the shadow of one gall bladder with two cavities, distal and proximal, which is not in reality a double gall bladder because the distal portion of the gall bladder does not possess a cystic duct communicating with the choledochus. Even in the gall bladder with a longitudinal septum, when the latter extends into the cystic duct until it reaches the choledochus, we risk misinterpretation when these two halves of the gall bladder do not function anatomically and physiologically independently one from the other, as happens when there are present double and full functioning organs.

The gall bladder with a septum is a nondeveloped or incomplete gall bladder which may be subdivided, for purposes of classification, into three types, to wit: the simple septum, two gall bladders in apposition, and two entirely independent gall bladders. The evolution of the intermediary stages has never been observed; we believe, therefore, that there does not exist in reality a free, intimate relation between the double gall bladder and the gall bladder with a septum. To summarize, we may accept the following anomalies of the gall bladder:

1. "Phrygian cap" gall bladder
2. Hourglass gall bladder
3. Gall bladder with a septum
4. Double gall bladder

1. A so-called "Phrygian cap" gall bladder usually results from folds of the gall-bladder wall causing retraction near the fundus, and the opaque shadows of the x-ray give the appearance of a silhouette of the Phrygian cap, also called "hooked gall bladder." This was first described in 1916 by Bartel and is frequently observed. The incidence is about 4 per cent in a series of 1000 x-ray plates examined by Meyers, Carter and Meeker, which caused them to conclude that these were congenital defects without any pathologic significance, although Bromer emphasizes their clinical importance. Many writers believe that the formation of folds leading to Phrygian cap gall bladder originates in congenital malformations and variations in the anatomic constituents of the gall bladder wall, others reason that these changes originate in inflammatory etiology, even during intra-uterine life.

In accord with Sigmund's conclusions, modified by Mascheroni, Reussi and Lafage, there probably exist many types of malformations which should be given adequate designations.

2. Hourglass gall bladder is one in which the gall-bladder septum is transverse, as in a diaphragm, giving rise to two cavities communicating through the diaphragm by one or more apertures, and the anatomic condition usually fails to demonstrate calculi or inflammatory changes, leading to the conclusion that the septum and cavitations are congenital and not pathologic. Hourglass gall bladder is often diagnosed by x-rays discovered accidentally, or occasionally because of the presence of calculi.

In 1928 Levine reported three cases of hourglass gall bladder, demonstrated by cholecystography. As inflammation and cholelithiasis tend to influence the formation of hourglass gall bladder, it is not surprising that we were able to demonstrate by shadowgrams the presence of two or more cavities.

Unslenghi and Ramon Sbad reported a case of trilobar gall bladder resulting from adhesions which formed three lateral cavities, two of them containing calculi. In one case, Meyer, Carter and Meeker demonstrated by injection through the cystic duct the permeability of an existing diaphragm.

3. The gall bladder with a septum is one in which the cavities are completely separated, as stated before, in contrast to the diaphragm type of partition. This condition may be congenital or acquired, the congenital resulting from the embryonic process of vacuolization of the cord in the formation of a gall bladder; the lack of reabsorption of a small part might lead instead to the formation of a septum; an explanation that is not satisfactory in relation to cases demonstrating a longitudinal type of septum. In this type of case, comparative anatomy reminds us of the existence in animals of two gall bladders. The gall bladder with an acquired type of septum we believe to originate in an inflammatory process, as does likewise the hourglass gall bladder, with the single difference, however, that in hourglass bladder the division is only partial, as compared with septum separation.

In 35 cases of gall-bladder anomalies reported by Stolkind, there were 10 gall bladders with longitudinal septi, 2 with transverse septi, 3 bilobular without evidence of the existence of a septum, and 20 cases in which double gall bladder was demonstrated. The 2 cases of transverse septum reported by Stolkind were from records of Doctors Dévé and Standinisky, and we can add two more cases, one reported by Ugelli in 1935 and the other from personal observation. Such a rarity justifies Gross' dictum that "a bilobular gall bladder is exceptional in man."

The septate gall bladder may be diagnosed by x-ray examination when there exist calculi in its cavities. To Schachner belongs the priority (1918) of the report of a case in which there are two groups of calculi separated by a free space, corresponding to the septum. Since then (1927), Deaver and Ashurst published a case diagnosed by x-ray.

4. A typical double gall bladder is limited for classification to those instances in which both anatomically and functionally, two independent gall bladders are demonstrable, even though one of the gall bladders may be smaller than the other; however, they should both possess cystic ducts communicating with the common duct, although occasionally we meet with bifurcations of the cystic duct. The first such case was published by Foot in 1693-4 in the *Philosophical Transactions.* In 1886, Purser presented a new case and new observations were later made, either during surgical intervention or by autopsy, of the existence of these types of anomaly. Cholecystography has revealed two sep-

arate groups of calculi, thereby demonstrating the existence of a double gall bladder.

In 1931, additional cases were reported by Cave, Lond and Kayes, but these were not clearly convincing, as was later shown in 1932 in a case report by Corachan and Figueras-Faixat, in which the films demonstrated perfectly separate structural identities. Although in 1940 Stolkind collected 20 cases, with 4 others which were insufficiently described, we must bear in mind that in 1936 Gross had already announced that the literature contained 28 cases, a number previously confirmed by Corachan and Figueras-Faixat in 1932. Of these 28, 27 were found in women and only 1 in man, but in the chart worked out by Stolkind, there appeared 5 cases in the male, which leads one to the conclusion that there is need of a revision of the literature to a total of 40 cases up to date. This is more or less in accord with Boyden's investigations of 19,000 autopsies, in which he found one double gall bladder in each group of three or four thousand, including cases of double gall bladder and accessory or rudimentary gall bladders.

The total number of anomalies reported by this investigator in 10,000 autopsies on animals is rather interesting, as he found double gall bladders in ratios of 1:8 in cats, 1:28 in calves, 1:85 in lambs, and 1:198 in deer. It is well known that in animals a double gall bladder is frequently encountered, while others show either aplasia or hypoplasia (horses, donkies, elephants, camels, ostriches, antelopes, parrots, pigeons, rats, whales, etc.) showing that the evolution of a gall bladder is frequently made by changes in the hepatic parenchyma, in accord with Browman's explanations. It is interesting to note that in the giraffe there is either complete absence of the gall bladder or a double gall bladder.

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SUMARIO

Cuatro anomalías de la vesícula biliar son descritas: (1) vesícula a "Gorro Frigio"; (2) vesícula a reloj de arena; (3) vesícula segmentada; (4) vesícula doble.

Se da énfasis a la importancia de un diagnóstico diferencial correcto.

RÉSUMÉ

Quatre anomalies de la vésicule biliaire sont étudiés: (1) la vésicule biliaire "bonnet Phrygien"; (2) la vésicule biliaire "en sablier"; (3) la vésicule biliaire cloisonnée; (4) la vésicule biliaire double.

L'importance d'un diagnostic précis est considérable.

Выводы

Автор описывает четыре аномалии желчного пузыря: (1) Пузырь формы "Фригийской шапки"; (2) Пузырь формы песочных часов; (3) пузырь с перегородкой; (4) двойной желчный пузырь.

Подчеркивается ценность правильного диагноза.

A Method of Vaginal Hysterectomy to Conserve Blood in Inversion of the Uterus

H A. SPRINGER, M.D., M.Sc.

CINCINNATI, OHIO

RECENT studies on the mortality rates for inversion of the uterus (10-43 per cent[1]) show little improvement in these rates during the past decade. It is the object of this paper to present a technic which, because of the simplicity of approach, will practically eliminate loss of blood during the operative procedure and minimize surgical shock. It is needless to say that by such a simple method infection can largely be controlled.

Before entering into the technic of the surgical procedure, I wish to make a few comments that should be carefully considered and studied by every teacher, as well as by practitioners of obstetrics. Recent studies classify shock into three divisions: (1) initial or primary shock; (2) traumatic or secondary shock; (3) the effects of hemorrhage.[2] There is no doubt that hemorrhage is by far the most serious complication of inversion of the uterus. A sudden change in the volume of blood of a given patient is, in my opinion, a much greater factor in producing shock than the actual mechanical action when the uterus is inverted. Secondly, complicating infections arise in direct proportion to the volume of blood lost (900 cc. of blood lost postpartem in a person weighing 60 kg. showed an incidence of 32 per cent of infections[3, 4, 5, 6]). Therefore, does it not seem reasonable that profuse and prolonged hemorrhages could be controlled more adequately and that inversion of the uterus, although of rare occurrence, could be recognized almost immediately, if our obstetrical teaching emphasized the following: first, that no delivery is complete until the placenta has been removed; second, and of equal importance, that no delivery is complete until the attending accoucheur depresses the perineum with a sterile strip of gauze on the gloved fingers of one hand, while he presses the uterus down with the opposite hand on the abdomen, so that the uterine cervix can be visualized.

It is the opinion of the writer that whenever the uterus is found to be completely inverted and bleeding is profuse, there is but one objective and that is to control bleeding. This control can be brought about best by depressing the floor of the perineum and passing one hand under the body of the uterus; then maneuvering the uterus out of the pelvis with the other hand on the abdomen. As soon as the uterus has been exteriorized, sterile gauze is thrown around the fundus and the organ is compressed between the two hands, first to aid in controlling bleeding and second to prevent loops of intestines from entering the uterus. A wide tourniquet is now placed about the neck of the cervix, but

only sufficiently tight to control all bleeding. With all bleeding controlled, the physician may proceed with uterine constricting medication, which is injected directly into the body of the uterus.[7] After the uterus remains firmly contracted, the placenta, if still attached, may be removed; then the tourniquet may be released gradually. If this procedure has adequately controlled the bleeding, local antiseptic dressings are applied and the uterus is placed into the pelvis, whereupon the general treatment of the patient is begun as outlined by many authorities on this subject.[8, 9, 10]

I am in agreement with the writers on the subject who advocate conservative treatment[7]; but the conservative treatment need be carried through only until the patient has reached a normal state, provided the procedure of vaginal hysterectomy by the blood-controlled method which I shall outline is followed.

OPERATIVE PROCEDURE

On April 4, 1939, a patient, aged 33, entered the hospital with an inverted uterus, a severe hemorrhage, and a very grave general condition. The patient received treatment, and by April 18 she had recovered sufficiently to withstand an operation, which was performed according to the following procedure.

On each side a towel clamp was applied at the inverted cervix, and a rubber tube was thrown around the cervix above the clamps to act as a tourniquet. The anterior fundus of the uterus was opened. The incision was extended upward toward the cervix until the reflection of the bladder was encountered. A lock suture, started at the upper end of the incision, united the peritoneal surface of the uterus to the endometrial surface. (Fig. 1) This suture line was continued around the incision in the uterus to the opposite upper end of the incision. The lock sutures produced hemostasis in the uterine wall. After the tourniquet with the two towel clamps were removed from the cervix, the bladder was freed from the anterior wall of the uterus and displaced into the pelvis. The incision in the uterus was extended into the cervix. A large clamp was inserted at right angles into the cervix on each side. The two clamps met on the posterior wall of the cervix. In order that the broad ligaments with their vascular structures might not slip through the clamps when the uterus was removed, the broad ligaments with their vessels were ligated with chromic catgut sutures on both sides above the clamps. Five grams of sulfathiazole were inserted through the cervix into the peritoneal cavity. The uterus was amputated in front of the clamps, held together parallel, and a weaving suture line brought the stump together. In the

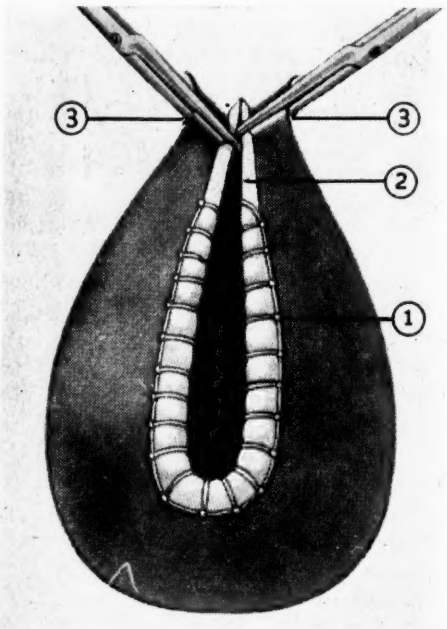

Fig. 1. 1. Incision in the body of uterus sutured with lock stitches. 2. Bladder displaced into pelvis and incision extended into cervix. 3. Hemostat inserted at right angles in proximal end of cervix.

first stitch the peritoneal bladder reflection was also included. The stump was invaginated by a continuous suture, bringing together the reflections of the vaginal wall at the cervical stump, a procedure which left no raw surface exposed. A large vaseline gauze pack was placed in the vagina for forty-eight hours.

The post-operative recovery was uneventful, and the patient left the hospital on the tenth postoperative day.

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RÉSUMÉ

Une technique d'hystérectomie vaginale qui élimine la perte de sang et contrôle l'infection est décrite pour être employée dans les cas d'inversion de l'utérus. Voici les différents étapes de l'opération: (1) extériorisation et compression de l'utérus; (2) placement d'un tourniquet autour du col de la matrice; (3) médication constrictant l'utérus; (4) enlèvement du placenta, s'il n'a pas été détaché; (5) enlèvement graduel du tourniquet; (6) pansements antiseptiques; (7) reintégration de l'utérus dans le bassin pelvien; (8) traitement général.

La technique est donnée en détail et un cas est rapporté.

SUMARIO

Ofrece una técnica para la histerectomía vaginal que elimina pérdidas de sangre y evita la infección en casos de inversión del útero.

El procedimiento incluye: (1) exteriorización y compresión del útero; (2) aplicación de un torniquete alrededor del cuello de la matriz; (3) medicamentos contractivos al útero; (4) extración de la placenta si permanece adherente; (5) el torniquete se afloja poco a poco; (6) aplicación de la gasa antiséptica; (7) reposición del utero en la cavidad pélvica; (8) tratamiento general.

Se da la descripción detallada de la técnica según se ha empleado en un caso.

Выводы

Автор описывает операцию вагинальной гистеректомии при инверзии матки, которая избегает потерю крови и инфекцию. Процедура такова: (1) экстериоризация и сжимание матки; (2) накладывание турникета на шейку матки; (3) вспрыскивание сжимающих медикаментов; (4) удаление последа; (5) медленное сжимание турникета; (6) стерильные перевязки; (7) возвращение матки в таз; (8) общее лечение.

Техника показанна детально при одном случае.

THIS IS YOUR COUNTRY TO HAVE AND TO HOLD

KEEP HER FOREVER SAFE AND STRONG

BUY MORE AND MORE WAR BONDS AND STAMPS

Editorials

Pontifex--Maximus

(The Bridge Builders)

WHILE this august heading is the traditional title that was conferred upon the supreme heads of a State and of the Church, the Emperors and the Popes, it is of interest to ponder upon its origin and significance. Conceived for the purpose of exalting the priestly class and ranking leaders of political power and of Christianity, it has had the emblematic or symbolic meaning "to build and to bridge" in constructive ideals and to unite in common effort the strength of the basic aims of human accomplishments.

Every activity and concept of progressive character and promise imply the elaboration, the planning and ultimately the bridging together of the details of organization so essential to the success of any scheme or plan.

International collaboration in the sciences and in the arts, as well as in politics, economy and commerce, is destined to prop up and spur delayed or retarded energy and to inspire and make effective the strength and bond of union so indispensable in carrying on and in perfecting all mental and physical labor designed for the advancement of knowledge and for the welfare and comfort of mankind.

To the bridge builders in the path of progress belongs the task of organization and action, and the implication of such responsibilities are inescapable, if the initiative and the ultimate objectives are sound and of lasting appeal and strength.

Constructive ideals and influences are and have always been, "among the attributes of mankind," the target of opposition and dissention, and we have learned at the fountain of experience that well-meaning and straightforward divergence of opinion and disagreement are not only natural and human, but at times stimulating and clarifying on the road to successful enterprise. While the practice of coercion and a sinister attitude are motivated by jealousy, the habit of aggression and lack of interest and understanding of vital issues, the effect is, nevertheless, destructive of initiative and of labor and self-sacrificing effort on the part of the honest sponsors of ideals.

The Bridge Builders and Founders of the International College of Surgeons have felt the urge and the need for the strength of collaboration from the leading surgeons of the world to enhance the natural genius and the inventive gifts which united efforts tend to develop, and the International College of Surgeons stands unrivalled and peerless in the

world of surgery today, fostering union and strength, and aiming at the cherished objectives of efficiency and perfection.

The International College of Surgeons basically proposes the international union of outstanding national leaders in surgery, of universities, colleges, qualifying Boards, and such other groups as exist for the broadening educational scope and the achievement of eminence and proficiency in the art and science of surgery.

That such an ideal is attainable, there can be no doubt; that no such project exists today, with life and effectiveness, is equally true; similar nomenclatures of less constructive or far reaching objectives have fallen by the wayside or linger in practical oblivion or inertia, and can be counted in the roll call of failures.

The International College of Surgeons, duly organized and incorporated in the United States and abroad, possesses an international educational perspective and invites the collaboration of national institutions in preparation for an educational program of world-wide range. To this end, competent Committees of Executives, with counsel by the Board of Governors, are at work on the manifold problems arising in the effective development of teaching activities for young surgeons under the auspices and patronage of the College.

We shall emerge from this devastating war, only to enter upon a period of chaotic confusion and post-war exhaustion brought about by depletion of our energies. Happily, however, the medical profession has played a rôle of supreme importance never before equalled in the history of the world and its wars, with a glorious record in preventing epidemics, reducing to an astoundingly small percentage the mortality in action, and raising to an incredibly high number the successfully rehabilitated wounded, disabled and mutilated.

The Medical Department of the Armed Forces, in all branches of the service, has performed, through efficient organization and manpower, pioneer work for the immediate benefit of the combat men, as well as for the co-ordinated personnel behind the front lines, the civilian and those on the home fronts.

The medical units returning to civil life and work, bringing with them recorded experiences and discoveries, will write new pages in medical and surgical progress, for which task we must, on our part, be fully prepared.

Medical schools, hospitals, medical and surgical societies, in fact all the organized associations for standardized teaching and practice must be ready and equipped to absorb the new knowledge and to facilitate continued guidance and orderly experience for young surgeons and surgical specialists in order to place within their reach the full measure of opportunities for professional competency and ethical maturity.

The International College of Surgeons, through its basic principles and purposes, is and will be prepared to fulfil its pledged program for basic education and clinical teaching, with national and international material to put into realization the ideal for which the College was founded, incorporated and organized.

Desiderio Roman, M.D.
International President.

Use of Sulfonamides in Surgery

SURGICAL infection, one of the most dreaded operative complications, has been substantially reduced by the use of the sulfonamides, introduced to the medical world by the implantation of sulfanilamide in traumatic wounds and into the peritoneal cavity in 1939.

Originally hailed as a miracle worker, sulfonamide therapy is recognized by the more conservative to have its dangers and should not be used indiscriminately by the uninitiated. It was hoped that the two newest derivatives, sulfaguanidine and succinyl sulfathiazole would sterilize human feces, but such has not proved to be the case.

To employ sulfa drugs successfully, the surgeon must be familiar with the potential dangers associated with their use. Skin rashes, drug fever, renal complications such as oliguria, acute hemolytic anemia, depression of white blood cells, nausea and vomiting may occur. Sulfonamide therapy is not a substitute for surgical procedure, but it will often prevent postoperative infections—septicemia or pulmonary and urinary tract infections.

The question arises as to choice of sulfa derivative. There are now a number from which to select—sulfanilamide, sulfathiazole, sulfapyridine, sulfacetamide (Sulamid), sulfadiazine, sulfaguanidine and succinyl sulfathiazole. The latter two are still in the experimental stage to a greater degree than their predecessors. Criteria for selection are: bacteria involved, region of infection, previous sensitivity to a sulfa drug. The only real contraindication to sulfa therapy is previous toxic reaction to the derivative employed.

Experiments have shown toxic reactions to be least following sulfadiazine, less after sulfathiazole and most after sulfapyridine. Renal calculi are found less frequently in patients treated with sulfadiazine or sulfapyridine. Blood dyscrasias occur less frequently after sulfadiazine and sulfapyridine. To avoid toxic reactions, careful regulation of fluid intake and output, frequent blood counts and urinalyses and close observation of the patient are essential.

To be effective, adequate concentration of the drug in the bloodstream must be obtained. Such a blood level is achieved within four hours after oral administration of 4 gm. of the sulfa drug. Because sulfonamides are poorly absorbed during labor, therapy for nonpregnant women cannot be applied to parturient women, who are best treated by parenteral injections.

Sulfanilamide is indicated for local infections and is still the sulfonamide of choice for implantation into the peritoneal cavity in peritonitis. It is especially valuable in the peritoneal cavity in the presence of a general soiling with fecal material after operations for perforation of a diverticulum of the sigmoid. It has also been used successfully for direct implantation into the abdomen and appendicial abscesses. It is safe, effective, and there are no untoward reactions. In surgery of the large bowel, sulfanilamide is preferable; oliguria may follow the use of sulfadiazine.

Microcrystals of sulfathiazole are especially recommended in surgery because their small size permits a more rapid rate of solution than sulfathiazole in any other form. Sulfathiazole may

also be used in abdominal suspensions. A chill followed by fever is a danger signal, and sulfathiazole should be discontinued immediately. Crystals in the urine and hematuria are contraindications to continuance of the drug.

Sulfathiazole is the drug of choice in treating infected or potentially infected surface wounds because it is effective against a wider range of organisms than sulfanilamide and over a longer period of time. Bleeding should be stopped as completely as possible and sutures inserted before the drug is introduced. Sutures should be tied after its application. Surface dusting may be followed by application of gauze impregnated with the powder. Strips of gauze treated with 5 per cent sulfathiazole vaseline ointment have virtually banished stitch abscesses.

In bone and joint surgery, sulfa therapy has reduced the incidence of death, and multiple bone involvement is reduced. The sulfonamides are used prophylactically to prevent relighting of a pre-existing, quiescent infection. Locally applied sulfonamide crystals have no apparent effect on the fate of transplanted bone. In hematogenous osteomyelitis fewer instances of massive bone necrosis occurred after sulfa therapy. Sulfathiazole gives encouraging results in chronic osteomyelitis.

In compound fractures carbamide sulfonamide mixtures applied as first aid measures permit of long delay before definitive surgery. However, it should only be done in hospitals where there is sufficient time, material and technical skill available. Compound fractures resulting from gunshot wounds may be treated by sprinkling the wound with sulfanilamide powder in conjunction with the proper surgical treatment.

Experimentally sulfadiazine is the sulfonamide of choice in gas gangrene.

Bacterial contamination in stored blood plasma can be prevented by sulfonamide derivatives.

Caution in the use, as well as complete understanding of the action and criteria of choice of sulfonamides, is still necessary, despite the rapid progress that has been made in sulfa therapy. Further experimentation will doubtless reveal many more surgical uses for the sulfa drugs. M. T.

INTERNATIONAL COLLEGE OF SURGEONS
MEMBERSHIP

For information about membership in the International College of Surgeons, address Mr. Ralph E. Osborne, Business Secretary, The Drake, 1512 Spruce Street, Philadelphia, Pennsylvania.

CHAPTER ACTIVITIES

BRAZIL

DR. MEM XAVIER DA SILVEIRA

DR. MEM Xavier da Silveira, young, brilliant Brazilian surgeon, has been visiting the United States recently at the behest of the Brazilian Government. He has been the guest of various universities and medical schools for the purpose of obtaining a perspective of the medical and surgical work done in the United States.

The Brazilian State Department spoke of him as "a man of outstanding merit in the field of medicine."

Dr. da Silveira is a graduate of the School of Medicine of the University of Brazil. He was honored by the gold medal award for surgery from his *alma mater*. He held an assistant professorship in the Surgical Clinic of the School of Medicine and Surgery in the University of Brazil, as well as in the School of Medicine of the University of Paris. He is a Member of the International Association of Anatomists of Paris and of the Argentinian Surgical Association. He is also an Honorary Member of the Society of Anatomical Embryology and Technical Surgery of Córdoba, Argentina and has been Lecturer in the Chair of Technical Surgery at the University of Montevideo. He is a Fellow of the Brazilian Chapter of the International College of Surgeons.

Dr. Mem Xavier da Silveira, F.I.C.S.

His latest contribution to surgical literature is "On the Simplification of Thyroid Surgery, Based on Anatomical Considerations."

He is an individual of much charm and individuality.

COSTA RICAN CHAPTER

Dr. Rafael Angel Calderón Guardia, Vice-president International College of Surgeons.

ON OCT. 1, in solemn assembly, the Inaugural Ceremony of the Costa Rican Chapter of the International College of Surgeons took place in San José, Costa Rica.

The program consisted of the following: Dr. Ortiz C., secretary of the Chapter, read the minutes of the previous meeting, which were approved.

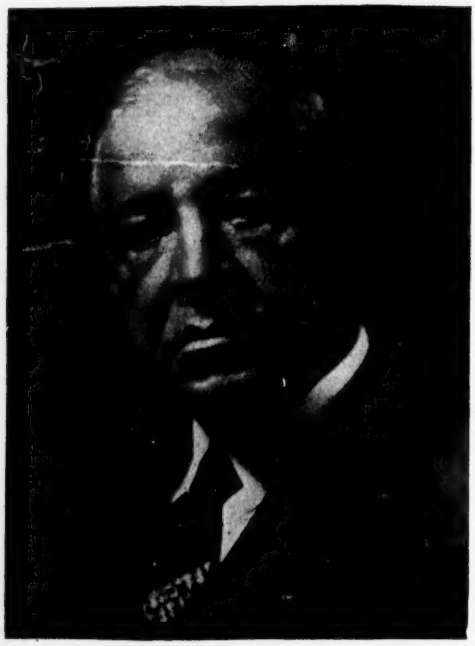
The constitution of the Costa Rican Chapter, based on the constitution of

Dr. Ortiz C., Secretary of the Costa Rican Chapter, delivering address.

Officers and members of the Costa Rican Chapter of the International College of Surgeons during the inaugural ceremony.

Dr. Joillo O. delivering his discourse.

the International College of Surgeons, was read by Dr. Joillo O. It was unanimously adopted and a copy dispatched to the central office.



Desiderio Román, A.M., M.D., Sc.D., F.A.C.S., F.I.C.S., President of the International College of Surgeons (1943-1945).

Prof. Dr. Rafael Angel Calderón Guardia, F.I.C.S. (Hon.), President of Costa Rica and National Regent of the Costa Rican Chapter, delivered an inspiring address as a preliminary to the ceremonious presentation of the diplomas and insignias to the various grades of Members and Fellows.

The new Fellows and Members were enthusiastically welcomed to the Chapter at a reception immediately following the installation ceremony.

UNITED STATES

DR. DESIDERIO ROMAN HONORED

THE genial president of the International College of Surgeons has received the signal honor of being appointed delegate from the Government of Nicaragua, with the rank of Colonel. It will be recalled that Nicaragua was the first to declare war on Germany and Hitler. He also has been made Honorary Fellow of the Association of Military Surgeons of the United States. These honors are well merited.

Book Reviews

The Case of A.L.—, Aged 56. Otto Eisenschiml, M.D. Published at Chicago, Ill., Nov. 1943, by Abraham Lincoln Book Shop. Edition limited to 500 copies.

DR. OTTO Eisenschiml, a chemist by profession and historian by avocation, has delved deeply into lay and medical reports and documents in an effort to solve several questions which since 1865 have perplexed and fascinated members of the medical profession.

First: What is the explanation for the incongruity of a bullet wound not on the right side, where it logically should have been, but on the left side? Second: What course did the fatal bullet take after entering the left side of the President's head, and where did it eventually lodge? Third: How were Lincoln's orbital plates fractured? Fourth: If physicians of his time had possessed present day knowledge, could Lincoln's life have been saved?

(1) How the bullet entered and the explanation of its location have always been much discussed questions, since the assassin was left-handed. Dr. Eisenschiml's analysis and final conclusions are worth study. (2) The author, in the face of conflicting medical testimony, accepts the statement of Dr. Charles S. Taft, who was present at the autopsy, that the course of the bullet was diagonal and that it lodged behind the right eye. (3) The fracture of Lincoln's orbital plates, the author attributes not to the force of *contre-coup* of the bullet, but to pressure transmitted to the brain by it, which pressure broke down the orbital plates at the points of least resistance. (4) The conclusion that modern scientists could have done no more to save Lincoln's life than was done seventy-eight years ago is a compliment to the medical care given the dying President. Nevertheless, the modern treatment of shock, the strict abstinence from exploration, and the aid of roentgenology may have indicated different management of the case.

In this well-written monograph, Dr. Eisenschiml has carefully evaluated a mass of conflicting medical opinion and testimony, consulting no less than eighteen competent medical men before arriving at the conclusions presented. This small volume is, therefore, a valuable contribution to Lincoln lore, and is recommended to surgeons particularly for its absorbing contents and vivid presentation.

Max Thorek

Surgical Clinics of North America. October, 1942. Volume 22. Number 5. 361 pp. Cloth $16. Paper $12. Issued serially, every other month (6 consecutive bimonthly numbers). W. B. Saunders Co., Philadelphia, 1942.

AN EXCELLENT symposium on the emergency aspects of the management and treatment of wounds, shock and burns makes the Baltimore Number of the Surgical Clinics particularly timely. Among the subjects discussed are: chemotherapy in contaminated and infected wounds; emergency aspects of ear, nose and throat surgery; management of eye injuries; urologic injuries; management of vascular injuries; immediate treatment of abdominal and thoracic wounds; emergency treatment of injuries to bones, joints and muscles and chemical warfare casualties; x-ray localization of foreign bodies; anesthesia and sedation in emergency surgery; treatment of burns. Contributors include Bertram M. Bernheim, Harold R. Bohlman, Edward M. Hanrahan, William Franklin Hughes, Jr., Robert Wilkinson Johnson, Jr., Edward Andrew Kitlowski, Perrin Hamilton Long, Philip Barbour Price, Charles A. Waters and Austin Heslop Wood from the Johns Hopkins School of Medicine. Other authorities whose articles appear in this number are Cless Y. Fordyce, Edward F. Lewison, Edward Looper and Walter Dent Wise.

M. T.

Surgical Clinics of North America. February, 1943. Volume 23. Number 1. 312 pp. Cloth $16. Paper $12. Issued serially, every other month (6 consecutive bimonthly numbers). W. B. Saunders Co., Philadelphia, 1943.

THE Chicago Number of the Surgical Clinics is devoted to Gynecology and Obstetrics, in addition to clinics on a variety of other subjects, such as surgery of derangements of the knee joint, treatment of compound fractures in the war injured, subtrochanteric osteotomy for fractures of the femoral neck, fractures of the os calcis, carcinoma of the rectum, rectal herniation, treatment of fissure, hemorrhoids and fistula in ano. Toxemia of pregnancy, management of threatened abortion and obstetrical hemorrhages, pregnancy in the cardiac patient, technics of supravaginal hysterectomy and administering cyclopropane in obstetrics, immediate care of the newborn, clinical use of vitamin K, therapeutic rôle of estrogens and gynecography are treated by a number of obstetricians well qualified in their fields. Drs. N. Sproat Heaney, William J. Dieckmann, Philip F. Schneider, Lester E. Frankenthal, Herbert E. Schmidt, M. E. Davis, J. P. Greenhill and Irving F. Stein are contributors to the symposium on gynecology and obstetrics. Drs. Channing Barrett, C. M. Shaar, Frank P. Kreuz, Jr., Daniel Levinthal, Edward Compere, Frank Murphy, Richard Gilchrist and G. V. Pontius are the authors of the other clinics presented.

M. T.

War Medicine. By Winfield Scott Pugh, Lt. Commander (M.C.) U.S.N. Retired; formerly Surgeon, City Hospital, New York. 565 pp. $7.50. Philosophical Library, Inc., New York, 1942.

THIS collection of articles on various aspects of war medicine, written by a group of authors well known to the profession, has appeared in numerous publications during the past two years. Most of them were taken from the *Military Surgeon*, the *British Medical Journal*, the *American Journal of Surgery*, the *Connecticut State Medical Journal*, and the *New England Journal of Medicine*.

Los delirios en cirugia. Estudio de las perturbaciones de orden psicopático vinculadas a los procesos quirúrgicos. Eduardo Blanco Acevedo y José A. Aguerre (Hijo). 205 p. Publ. by the authors, Montevideo, 1941.

THE authors have contributed an exceptionally fine analysis of mental aberrations encountered in surgical practice. They stress that many psychoses are brought about by apprehensive conditions preoperatively, physiopathologic changes incident to operative trauma, and the various neurogenic instabilities postoperatively. In the stress of daily surgical practice, he often overlooks the important rôle of the mental attitude and psychic reactions of the patient. Many abnormal mental states may be remedied prophylactically, and certainly many patients may be restored to health by proper and timely therapy. The book opens with a general discussion of the various mental aberrations. An historical sketch precedes the concept and definition of the subject matter, which is then analyzed from the symptomatologic and psychiatric points of view. The classification of the morbid entities, and the chapter dealing with anatomic pathology are engaging. The second chapter deals with the various delirious states as the result of infections. The factors responsible for the condition, the symptomatology, and prognosis, as well as the evolution of the morbid states, are lucidly described. The obstetrician will find an absorbing chapter on puerperal psychoses. It is pointed out that chronic infections may give rise to abnormal mental states. The various melancholias resulting from such conditions as chronic appendicitis, chronic osteomyelitis, gonorrhea, hepatic abscess, pulmonary suppuration, etc., are described. The discussion of mental aberrations resulting from exotoxic sources forms a splendid chapter. Such syndromes as delirium tremens and those resulting from auto-intoxications from all sources (gastrointestinal, renal), and those resulting from inanition and the anemias are thoroughly described and discussed. The mental affections resulting from the dysfunction of the endocrine system and vegetative nerve apparatus offer absorbing reading. The general surgeon and those engaged in industrial work and in war efforts will find much to garner from in Chapter 6. From the general surgeon's point of view, Chapter 7 is a veritable mine of information. Every problem has come under the searching analysis of the authors, who believe that the various delirious states not directly attributable to cerebral mischief are the expression of an acute or subacute intoxication of the cerebral mechanism. Such being the case, it is the duty of the surgeon, they point out, to search for the source of the psychosis and to eliminate it. Also, in the absence of any obvious inflammation, it is one's duty to scrutinize the genetic possibilities of the phenomena in question, and if of psychic origin, psychotherapy will bring about the desired relief. All-in-all, this reviewer sincerely hopes that this work will be translated into English, but those surgeons who read Spanish should certainly take advantage of the wealth of material which is encompassed in this volume of only 205 pages. The work concludes with a bibliography which is up to date, as well as an index. M. T.

Diseases of the Breast. Charles F. Geschickter, M.A., M.D., Director Francis P. Garvan Cancer Research Laboratory. 829 pp., 593 illus. $11. J. P. Lippincott Co., Philadelphia, 1943.

IN HIS new book Geschickter gives a thorough presentation of the etiology, diagnosis and treatment of mammary diseases, including much original material. The compendium of information on the mammary gland is exceptionally well organized. Its thirty-five chapters, arranged in seven divisions, treat logically the physiology and development of the breast, changes which occur during pregnancy and lactation, chronic cystic mastitis, neoplasms (benign and malignant), therapy, and finally experimental production of mammary tumors.

Dr. Geschickter's own laboratory experiments on rats and rabbits, described in Part VII, form the basis for conclusions as to the mechanisms of tumor formation and the interesting hypothesis that the secret underlying malignancy may be learned from the breast.

Dr. Geschickter discusses the endocrine theory of chronic cystic mastitis, the influence of hormones on diseases of the breast, and describes fully the two common groups of benign breast tumors, fibroadenomas and papillomas; besides, he treats thoroughly mammary cancer, stressing the importance of proper, early diagnosis and listing ten criteria for choice of therapy.

Dr. Geschickter's book is highly recommended to the diagnostician, the surgeon, and the specialist in mammary cancer.

M. T.

Gynecology, with a section on Female Urology. Lawrence R. Wharton, Ph.B., M.D., Associate in Gynecology, The Johns Hopkins Medical School. 1006 pp., 444 illus. W. B. Saunders Co., Philadelphia, 1943.

THE AUTHOR points out that a large part of the practice of gynecology is now medical and preventative, so in addition to surgical principles and operative procedures he has emphasized the care of normal women, prevention of gynecologic disease, differentiation between functional disorders and organic disease, keeping in mind the requirements of the medical student.

This volume combines gynecology and female urology, so that the obstetrician and gynecologist may have a single volume in which the closely associated urological tract is included. This is indeed a very happy combination. At the beginning of each chapter an outline is presented which is for the particular use of the student. Interesting historical facts have been included, which I believe have distinct teaching value.

Section II, which deals with embryology and congenital malformations, is presented in a simple concise and understandable manner. It is refreshing to note that the author did not go into a discussion of the theoretical differences which exist in modern endocrinology. He has tried very earnestly to adhere to established clinical facts. The chapter on the sym-

pathetic nervous system, although brief, is very well done. The handling of the chapter on chemotherapy is excellent.

It was interesting to note that the daughter of Max Brodel, Miss Elizabeth Brodel did many of the drawings.

This fine work should receive a happy welcome from students and practitioners alike.

P. T.

The Doctor and His Patients. Arthur E. Hertzler. 316 pp. $1. Harper's, New York, 1942.

DR. HERTZLER is convinced that the only thing which can ultimately bring to an end the bloody confusions and conflicts of the world is "a mass appreciation that whenever there is a casualty some one's son has died." He looks for lasting peace "when the world at large comes to regard war as doctors do disease," and when the child and love for the child, purged of lust and selfishness, becomes "to civilization what the Klebs-Loeffler bacillus is to diphtheria."

His book, therefore, attempts to analyze the human environment in which the power of the child can be released for the regeneration of the world. It is, for the most part, a homely and sane discussion of the age-old problems of sex and marriage, of childbearing and divorce. He is blunt and fearless in pointing out the areas in which the uplifted hand of authority—ecclesiastic and civil—still stays the biologist and the doctor as they seek to bring understanding and healing into the yet chaotic environment of the child, the home.

Readers may disagree as to how completely Dr. Hertzler has proved his thesis. But there can be no disagreement about the wisdom and tolerance with which the "horse and buggy doctor" has tackled the always fascinating subjects of love, marriage and divorce, touching with accurate diagnostic finger the underlying causes of domestic strife, frustration, violence, misery, and tracing the unfolding of love for the child—which he carefully separates from mere sex-lust—from the first instinctive solicitude of a little girl for her doll to the mellow ripening of affection in old age.

Here is a warm and human narrative, pungently seasoned with commonsense and the racy humor which readers of the "Horse and Buggy Doctor" rolled so zestfully on their tongues. It is a heartening reminder that, in these days when medicine tends to rely on the cold and accurate tools of science, there are still plenty of doctors who never forget to pack with the instruments and pills in their old black bags liberal and life-giving doses of plain human understanding more efficacious than any drugs.

Max Thorek

Apendicitis Cronica. By Fernando M. Bustos, M.D., Professor of Clinical Surgery, University of Buenos Aires. Editorial "El Ateneo," Buenos Aires, 1940.

THIS excellent monograph is a valiant and frank attempt to unravel the confusion that exists in our knowledge of this clinical and pathologic entity. The author emphasizes the importance of recognizing and treating the associated gastro-intestinal lesions, particularly those of the colon, if appendectomy in the adult is to result in an amelioration of the symptoms. In support of this contention he shows the relatively high percentage of failures encountered in his own series of 535 operated cases, in spite of well planned pre- and post-operative medical treatment of the associated pathology.

The reviewer must take issue with the statement that the pain of chronic appendicitis is aggravated during the menstrual periods in the majority of cases. In the presence of such a history, the diagnostician should make every effort to rule out the possibility of genital pathology. We are all too familiar with the complaints of neurotic women who have been plunged into a life of misery because of one or more surgical interventions for dubious post-operative adhesions that were supposed to have resulted from an appendectomy for chronic appendicitis.

This monograph merits high commendation and is particularly recommended to the young practitioner.

A. R. Larrain

Constitution and Disease: Applied Constitutional Pathology. Julius Bauer, M.D., Professor of Clinical Medicine, College of Medical Evangelists, Los Angeles. 220 pp., 5 figs. $3.50. Grune & Stratton, New York, 1942.

THE AUTHOR, as a result of his wide experience and close observation of the end-results of organic harmony or disharmony in the functions of the body, has written a concise volume which will be a valuable and useful source of help to practitioners of medicine. He stresses the importance of the Science and the Art of Medicine and the consideration of the patient as an entity, not to be looked upon in sections as a piece of highly specialized machinery.

The rôle of genetics, the factors of heredity and environment, and the effects of normal or abnormal stimuli on the individual are considered. It is refreshing to have the importance of the understanding of normal or abnormal states so clearly emphasized in the practice of medicine.

Endocrinologic factors are carefully considered, and a clear balance of judgment and suggested procedure is evidenced throughout.

It would be difficult to select any one outstanding chapter, but that dealing with principles of treatment, non-specific therapy, and pitfalls and errors should be completely mastered by every practitioner of the healing art.

The subject is timely for the alert practitioner interested in human biology, physiology and pathology. It brings to a sharp focus what is known about constitution and disease. If the contents of the book were completely mastered by the medical profession and as wisely used as by the author, the power and influence of the medical profession would tend to be lifted far above the baneful influence of charlatans and politicians.

E. Forrest Boyd, M.D.

Allergy. Eric Urbach, M.D., Associate in Dermatology, University of Pennsylvania School of Medicine. 1073 pp., 396 figs. Grune & Stratton, New York, 1943.

THIS work offers an excellent survey of allergy and its allied conditions. The author explains the basic principles of allergy, including the predisposing and contributing factors. While it is almost always possible to diagnose an allergic condition he admits that therapy is still not very satisfactory and has to be improved. The etiologic factors of allergic

diseases as well as the allergic reactions are manifold and multifarious.

He makes it clear that the study of an allergic person is connected with many different tests and difficulties and that it is dependent on environment, heredity and constitutional factors. He describes thoroughly experimental studies which have been carried on in this field, especially those in connection with antigens and antibodies. The author calls attention to the reactions of "false positive" and "false negative" and how to deal with them.

Of special interest is the chapter on allergic diseases of the gastro-intestinal tract, introducing the "Specific Propeptan Diet."

The author gives a sound and clear description of the allergic skin diseases and the allergic manifestations of the different organs, such as the heart, joints, urinary tract and others.

The book contains excellent descriptive illustrations. The table of contents and index of authors deserve special attention.

The need of specialists, general practitioners and students for a book of this character has been apparent for a long time. This useful guide is recommended to anyone interested in the subject of allergy.

H. Sulzberger-Hartley

Urine and Urinalysis. Louis Gershenfeld, Ph.D., Ph.M., D.Sc., Professor of Bacteriology and Hygiene and Director of the Bacteriological and Clinical Chemistry Laboratories at the Philadelphia College of Pharmacy and Science. Ed. 2. 304 pp., 42 illus. $3.25. Lea & Febiger, Philadelphia, 1943.

THIS is a revised and enlarged second edition of the author's well-known volume on the urine and its analysis. In a compact space the subject has been thoroughly covered, too thoroughly perhaps, for the busy practicing physician and even for the laboratory worker. Practically every known test and procedure is described and discussed, with the result that the hurried practitioner finds himself at a loss in selecting the one good, reliable test that will give him the information he desires. This is not mentioned as an objectionable feature of an unusually fine work, but the value of the volume as a working medium would be greatly enhanced if the simplest reliable test were singled out prominently and followed by others not so easily performed or applied or so commonly employed.

Beginning with a consideration of the structure and function of the kidney, the author passes on to the chemical and physical characteristics of the urine, describing its pathologic contents and its analysis, quantitively, qualitatively and microscopically. The various special tests for pregnancy and renal function are fully considered.

While the author devotes much attention to the routine two- and three-glass tests in the diagnosis of urethritis, he fails even to mention the various modifications of these tests which have devised to correct the diagnostic errors inherent in the two and three glasses. While this omission may be considered unimportant, the general excellence and thoroughness of this work would seem to call for the inclusion of these important modifications.

Excellent illustrations accompany and clarify the text. The style is clear and simple. The volume is a most valuable addition to the working library of the physician and laboratory technician and deserves high commendation.

A. L. Wolbarst

Hope Deferred. Jeanette Seletz. 536 pp. $2.75. Macmillan, New York, 1943.

TIME was when medical students and young interns raised worshipful eyes to the Olympus where dwelt the gods of medical faculties and hospital staffs. If Miss Seletz knows today's crop of young medicos—and there is every evidence that she knows them through and through—that time has passed. The eyes of budding physicians and surgeons are now focused, with relentless realism, on those feet of clay which always have protruded from the robes of deity.

The starry-eyed novice of yesterday was in for a shock of disillusion when he discovered that jealousy and politics and time-serving and even money-grabbing were to be found and coped with in the high profession he was entering. And, no doubt, the stern, uncompromising young judge, who sees through the pomposities and incompetencies and shams of his mentors with merciless justice, will come in time to temper his judgment with humanity. No doubt he will learn, as others have learned before him, that the dilemmas doctors meet really do have sharp horns, that unwillingness to seize upon the newest "discoveries" in the field is not *always* a mark of a mossback, that the doctor who, never sparing himself in the face of human need, becomes an early martyr of his profession *may* accomplish less for humanity than one who learns the patience to work within his human limitations.

The best evidence that Miss Seletz has written a significant book is that it is being avidly read by medical students and young people just about to enter medical training. It is uniquely their book. For, whereas many novels and medical biographies have devoted their chapters to a doctor's training, this book devotes its whole 536 pages to that all-important period. In its first chapter, Jone Brent, fresh from the country and full of idealistic ambition, stands at the gates of Victor Horsley Medical School. As the book ends, Jone Brent, seasoned and sober, a little sick with "hope deferred" speeds westward by train to begin his career as a neurosurgeon. In between are the episodes, gay and somber, momentous and trifling, personal and professional, which are stirred into the making of a medical education.

Miss Seletz, an excellent craftsman, with notable powers of observation and character delineation, might have blue-pencilled perhaps one-third of the book's pages heightening the effect by compression.

Max Thorek

Advances in Internal Medicine. Vol. I. Editor J. Murray Steele. 292 pp. $4.50. Interscience Publishers Inc., New York, 1942.

THESE essays will be welcomed by the general practitioner as well as the specialist of internal medicine. There is so much material published in the field of practical and theoretical medicine that even the specialist can hardly keep track of his specialty. This volume contains valuable contributions by outstanding scientists.

W. O. Abbott writes about "Technique and the Use of the Miller-Abbott tube." The exact description of its application is useful for diagnostic and therapeutic purposes. P. H. Lavietes points out the theoretic basis of the "Use of Insulin in Diabetes." He pleads for the theory that insulin is necessary in the oxidation of carbohydrates. The author accepts the newer concept of the mechanism of keratosis.

However, his statement that high fat intake in any way impairs carbohydrate tolerance is questionable. Very interesting is R. H. Wilkins "Sympathetic Control of the Vascular System." This field is rather neglected and its methods should be used at the bedside. "The Antibacterial Action of the Sulfonamide Drugs" by C. M. MacLeod and "The Choice of the Sulfonamides in the Treatment of Infections" by C. S. Keefer will be appreciated by internists and practitioners as well, particularly for their excellent guide to the use of sulfa drugs. The same is true of "Infections of the Urinary Tract" by L. A. Rantz. The essay "Present Trends in the Study of Epidemic Influenza" of T. Francis Jr. shows the latest researches of this field. "Hypertension" of I. H. Page and A. C. Corcoran is a masterpiece of reporting. The latest experiments appear to be very promising as to successful treatment of hypertension. L. E. Farr discusses the controversial problems of nephrosis and advances made in its treatment. "Riboflavin Deficiency" of H. Jeghers describes the recent clinical studies. His personal experience confirms the frequency of this deficiency.

To summarize, we should be very much obliged to the editor for this excellent collection of medical essays.

Otto Porges

Ancient history records that Pien Chiaco (255 B.C.) was the first to associate the pulse with disease. Wang Shu-ho (280 A.D.) wrote a treatise of ten volumes on such relationship. The physician was instructed to use the right hand for the left pulse, his left hand for the right pulse. The pulse of each wrist was divided into three bars, each of which revealed the condition of the internal organs. Thus, variation of the right pulse represented pathologic changes in the lungs and large intestine, and similar changes in the left pulse indicated disturbance in the function of the kidneys, bladder and spleen. The volume and rate of the pulse was divided into four classes. The first classification was compared with wood floating on water; the second was compared with a stone thrown in water; the third represented three beats to each respiration, and the fourth, six beats to each respiration. Prognosis was also determined by the volume and rate of the pulse. If the pulse resembled a bird pecking wood, death occurred during the next four days. Death was assured on the third day if the pulse compared with a feather floating in the air. A pulse which gave the sensation of a tense string resulted in death on or before the eighth day. If the pulse resembled rolling marbles, immediate death was suspected. Inevitable death was preceded by a pulse compared with a darting fish. Five hundred years later it was taught that the pulse presented certain peculiarities in the presence of pregnancy. A slippery and scattered pulse represented pregnancy of three months. If the pulse was rapid and unscattered pregnancy of six months was assumed.

H. J. Sims, M.D.

INTERNATIONAL COLLEGE OF SURGEONS
MEMBERSHIP

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Argentina

Actualidad Médica Mundial (Buenos Aires) Año XIII, Nos. 128, 129 and 130, May, June and July, 1943.

Anales de Cirugía (Rosario) Vol. IX, Nos. 1-2, March-June, 1943.

Archivos Argentinos de Tisiologia (Buenos Aires) Tomo XIX, No. 2, April-June, 1943.

Artroplastía del Codo. Oscar Busto. Buenos Aires, 1943.

La Revista de Medicina y Ciencias Afines (Buenos Aires) Año V, Nos. 5, 7 and 8, May, July and Aug. 30, 1943.

Le Monde Médical (Buenos Aires) Año LIII, No. 966, July-August, 1943.

Revista Argentina de Urología (Buenos Aires) Año XI, Nos. 11 and 12, 1943.

Revista Argentino-Norteamericana de Ciencias Médicas (Buenos Aires) Año 1, Nos. 1, 2 and 3, May, June and July, 1943.

Revista del Círculo Médico Argentino y Centro Estudiantes de Medicina (Buenos Aires) Año XLII, Nos. 487-491, March-July, 1932.

Revista de Cirugía de Buenos Aires (Buenos Aires) Año XXII, No. 5, May, 1943.

Revista Médica Latino-Americano (Buenos Aires) Año XXVIII, Nos. 331, 332 and 333, April, May and June, 1943.

Revista de Medicina Cancerología (Buenos Aires) Año XVII, Nos. 162, 163 and 164, 1943.

Revista Médico-Quirúrgica de Patología Femenina (Buenos Aires) Año X, Tomo XXI, No. 5, May, 1943.

Revista de la Sanidad Militar (Buenos Aires) Año XLII, Nos. 6 and 7, June and July, 1943.

Bolivia

Prensa Médica (La Paz) Año III, Nos. 4 and 5, June and July, 1943.

Brazil

Anais Paulistas de Medicina e Cirugia (São Paulo) Vol. XLV, Nos. 5 and 6, May and June; Vol. XLVI, Nos. 1 and 2, July and Aug., 1943.

Arquivos Brasileiros de Cirugia e Ortopedia (Rio de Janeiro) Tomo X, No. 4, 1942.

Arquivos de Cirugia Clínica e Experimental (São Paulo) Vol. VII, Nos. 1 and 2, Feb. and April, 1943.

Boletin do Sanatório São Lucas (São Paulo) Vol. IV, Nos. 11 and 12, May and June; Vol. V, Nos. 1 and 2, July and Aug., 1943.

Brasil-Medico (Rio de Janeiro) Año LVII, Nos. 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35, June, July and Aug., 1943.

Gazeta Clínica (São Paulo) Año XLI, Nos. 5 and 6, May and June, 1943.

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Revista Brasileira de Tuberculose (Rio de Janeiro) Año XII, Nos. 87 and 88, May-June and July-Aug., 1943.

Revista Clínica de São Paulo (São Paulo) Vol. XIII, Nos. 4 and 6, Apr. and June, 1943.

Revista de Ginecologia e d'Obstetrícia (Rio de Janeiro) Año XXXVII, Nos. 1 and 2, July and Aug., 1943.

Revista de Obstetrícia e Ginecologia de São Paulo (São Paulo) Vol. VI, No. 3, Feb.-Apr., 1943.

Ceylon

The Journal of the Ceylon Branch of the British Medical Association (Colombo) Vols. XXXIV and XL, Dec., 1942 and Apr., 1943.

Chile

Medicina Moderna (Valparaiso) Año 16, No. 11, June, 1943.

Colombia

Medicina y Cirugía (Bogotá) Vol. VII, No. 12, Aug.; Vol. VIII, No. 1, Sept., 1943.

Costa Rica

Revista Medica de Costa Rica (San José) Año 10, Nos. 109 and 110, May and June, 1943.

Cuba

Anales de la Academia de Ciencias Médicas, Físicas y Naturales de la Habana (Havana) Tomo LXXXII, No. 1, 1943-44.

Boletin Mensual del Hospital de la Policia Nacional (Havana) Vol. II, Nos. 9 and 10, Sept.-Oct., 1943.

El Nuevo Hospital (Havana) Año II, Nos. 7 and 8, July-Aug., 1943.

Revista Médica Cubana (Havana) Tomo LIV, No. 7, July, 1943.

Revista de la Sanidad Militar (Havana) Año VII, No. 2, April-May-June, 1943.

Revista de Tuberculosis (Havana) Año VII, No. 1, Jan.-Mar., 1943.

Síntesis de los Fundamentos Cientificos y de la

Práctica de la Vacunación Antituberculosa por el B.C.G. Pedro Domingo, Havana, 1943.

Vida Nueva (Havana) Año XVII, No. 6, June, 1943.

Mexico

Asistencia (Organo Oficial de la Secretaría de la Asistencia Pública) (Mexico, D.F.) Tomo VI, Nos. 23 and 24, July and Aug., 1943.

Boletín de la Sociedad Mutualista Médico-Farmaceutica de Guadalajara (Guadalajara) Tomo XV, Nos. 3, 4 and 5, March, April and May, 1943.

Cirujía y Cirujanos (Mexico, D.F.) Tomo XI, No. 8, Aug. 31, 1943.

Gaceta Médica (Villahermosa) Año V, No. 56, Aug., 1943.

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Monterrey Médico (Monterrey) No. 92, Aug. 31, 1943.

Pasteur (Mexico, D.F.) Año XVI, Tomo I, Nos. 5 and 6, May and June; Tomo II, Nos. 1 and 2, July and Aug., 1943.

Revista de Cirugía (Mexico, D.F.) Vol. XV, No. 4, July 15, 1943.

Revista de Medicina y Ciencias Afines (Mexico, D.F.) Año II, Tomo II, No. 14, Sept., 1943.

Revista Médica (Puebla) Tomo XVI, Nos. 159 and 160, Sept. and Oct., 1943.

Revista Médica del Hospital General (Mexico, D.F.) Año V, Nos. 1 and 2, Aug. and Sept., 1943.

Revista Mexicana de Cirugía, Ginecología y Cáncer (Mexico, D.F.) Año XI, Nos. 5 and 6, May and June, 1943.

Revista Médica Veracruzana (Veracruz) Tomo XXIII, Nos. 9 and 10, Sept. and Oct., 1943.

Sugestiones (Mexico, D.F.) Año IX, Nos. 97 and 98, Sept. and Oct., 1943.

Peru

La Reforma Médica (Lima) Año XXIX, Nos. 404, 405, 406, 407, 408 and 409, June, July and Aug., 1943.

Puerto Rico

Boletín de la Asociación Médica de Puerto Rico (San Juan) Año XXXV, No. 8, Aug., 1943.

Union of South Africa

Clinical Proceedings (Cape Town) Vol. 2, Nos. 6 and 7, June and July, 1943.

Union of Soviet Social Republics

Chirurgia (Moscow) No. 4, 1943.

Doklady Akademii Nauk (Moscow) XXXVIII, 1, 2-3, 4, 5-6, 7, 1943.

Voenno-Sanitarnoe Delo (Moscow) No. 4, 1943.

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INTERNATIONAL COLLEGE OF SURGEONS
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FRAGMENTS OF SURGICAL HISTORY

In 1805, Chaussier, a French obstetrician, proposed the use of a metal tube introduced directly into the larynx of infants who were born in a state of apparent death. Others, notably Dozes, attached a bellows to the tube as a means of restoring those suffocated. LeRoy, in 1827, reported to the Academy of Science the danger of emphysema and death following the vigorous use of the bellows. The method became unpopular. Depaul, in 1845, made an unsuccessful attempt to popularize the tube of Chaussier. Bouchut, in 1857, described tubage of the larynx for croup. Trousseau, who had popularized tracheotomy for this condition, opposed Bouchet and again intubation was lost as an art. In 1871, Weinlechner set forth the advantages of Bouchut's method and again the method was not acceptable. O'Dwyer, in 1885, described a practical tube and air introducer and with few modifications it has remained the instrument of choice.

Cysts of the urachus are said to have been recognized by Wolf in 1873. Wutz, in 1883, reported a case and questioned the case report made by Wolf. The earliest information on the subject was given by Hoffman in 1870, and by Tait in 1883. Kroulein, in 1892, removed an abdominal tumor which had its origin from the urachus. Mecke reported finding urachus cysts in pigs; Sutton found them in moles, and Gurlt and Freer observed the same anomaly in the horse.

Marconi reported removing a prevertebral lymphosarcoma and a section of the ascending vena cava. Autopsy three years later revealed the establishment of collateral circulation through the ovarian, lumbar, phrenic and small azygos veins. It is now believed that the collateral circulation was established previous to the operation.

The tourniquet or "gripe-stick," also known as the garrat or Spanish windlass, was devised by Morel, a French military surgeon during the siege of Besançon in 1674, and by Young of Plymouth, England, in 1679. Morel's apparatus consisted of a compress of cord placed around the limb and tightened by turning two short sticks placed under the cord. Le Dran advised placing an additional pad immediately over the vessel and by the use of only one stick. Petit, in 1718, devised wooden plates through which passed a large set-screw. Tightening or loosening of the screw determined the degree of pressure. Esmarch devised the rubber band. Thomas, in 1898, devised an instrument similar to the Doyen's stomach clamp. One blade passed deeply into the tissue and the other engulfed the contour of the extremity.

William Alexander removed the superior cervical ganglia in 16 cases for the cure of epilepsy. Palmer, in 1835 or 1836, divided the integument down to the bone of the skull. Convulsions returned. He then removed a piece of the scalp and the number of convulsive seizures was reduced. Because of their return he trephined with results. White, in 1891, tabulated 51 cases subjected to trephining in which relief of symptoms occurred. In none of these cases was pathology demonstrated in the brain. McKinley, during the year 1855, performed five castrations with cures in all cases. Hall and Cane, separately, in 1851, performed tracheotomy for relief of epilepsy. They claimed results. Preston, in 1831, ligated the common carotid artery for epilepsy

with favorable results. White, in 1891, tabulated 28 cases submitted to either ligation of the carotid or vertebral arteries.

The recognition of Meckel's diverticulum is said to have been first observed by Lavater. In 1701, Ruysch, in his book "Thesaurus Anatomicus" described this anomaly and named it "diverticulum." Morgagni, in his treatise on the "Seats and Causes of Diseases," describes diverticulum of the ileum. He also describes having found such a structure in an inguinal hernia and in geese. Meckel differentiated the diverticula which bears his name from acquired diverticula. He advanced the theory that it represented the remains of the omphalomesenteric duct. Elliot Coues, an American, 50 years previous to Meckel, described such an anomaly, but classed it as umbilical cæca. He further observed that this structure is frequently found in the lower family of birds, such as the Grallatores and Natatores, while in the higher order it is an exceptional finding.

Grynfeltt, in 1866, described a space known by his name. Lesshaft, in 1870, unaware of Grynfeltt's observation, described the same space and in Germany it is known as "Lesshaft's triangle."

H. J. Sims, M.D.

From the Constitution of the

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"The International College of Surgeons is a purely scientific organization incorporated not for profit, and solely for the advancement of the Art and Science of Surgery in all its branches.

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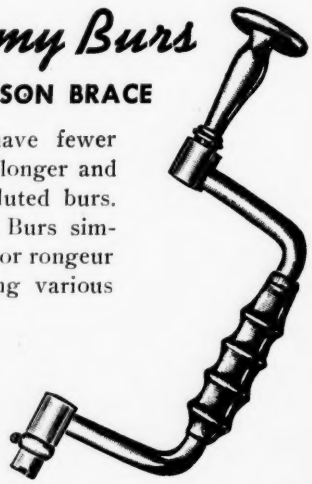

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